Service
Service
Service

ENERGY STAR



Service Manual

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SAFETY NOTICE

ANY PERSON ATTEMPTING TO SERVICE THIS CHASSIS MUST FAMILIARIZE HIMSELF WITH THE CHASSIS AND BE AWARE OF THE NECESSARY SAFETY PRECAUTIONS TO BE USED WHEN SERVICING ELECTRONIC EQUIPMENT CONTAINING HIGH VOLTAGES.

CAUTION: USE A SEPARATE ISOLATION TRANSFOMER FOR THIS UNIT WHEN SERVICING

Revision List

Version	Release Date	Revision History	TPV Model Name
A00	Oct.-31-2011	Initial release	T6BADL2KBXA1NNE
			T6BADL2EBXA1NNE
			T6BADL2QBXE6NNE
			T6BADL2CBXA1NNE
A01	Mar.-13-2012	Add new models	T6CADL2CBXA2NNE
			T6CADL2EBXA2NNE
A02	Nov.-13-2012	Add new models	T6CADL2FBXA1NNE
			T6CADL2FBXA3NNE
			T6CSDL2MBXA1NNE
			T6BSDL2BBXACNNE
			T6CSDL2KBXE6NNE
			T6CSDL2FBXA1NNE

Important Safety Notice

Proper service and repair is important to the safe, reliable operation of all AOC Company Equipment. The service procedures recommended by AOC and described in this service manual are effective methods of performing service operations. Some of these service operations require the use of tools specially designed for the purpose. The special tools should be used when and as recommended.

It is important to note that this manual contains various CAUTIONS and NOTICES which should be carefully read in order to minimize the risk of personal injury to service personnel. The possibility exists that improper service methods may damage the equipment. It is also important to understand that these CAUTIONS and NOTICES ARE NOT EXHAUSTIVE. AOC could not possibly know, evaluate and advise the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, AOC has not undertaken any such broad evaluation. Accordingly, a servicer who uses a service procedure or tool which is not recommended by AOC must first satisfy himself thoroughly that neither his safety nor the safe operation of the equipment will be jeopardized by the service method selected.
Hereafter throughout this manual, AOC Company will be referred to as AOC.

WARNING

Use of substitute replacement parts, which do not have the same, specified safety characteristics may create shock, fire, or other hazards.

Under no circumstances should the original design be modified or altered without written permission from AOC. AOC assumes no liability, express or implied, arising out of any unauthorized modification of design.
Servicer assumes all liability.

FOR PRODUCTS CONTAINING LASER:
DANGER-Invisible laser radiation when open AVOID DIRECT EXPOSURE TO BEAM.
CAUTION-Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
CAUTION -The use of optical instruments with this product will increase eye hazard.

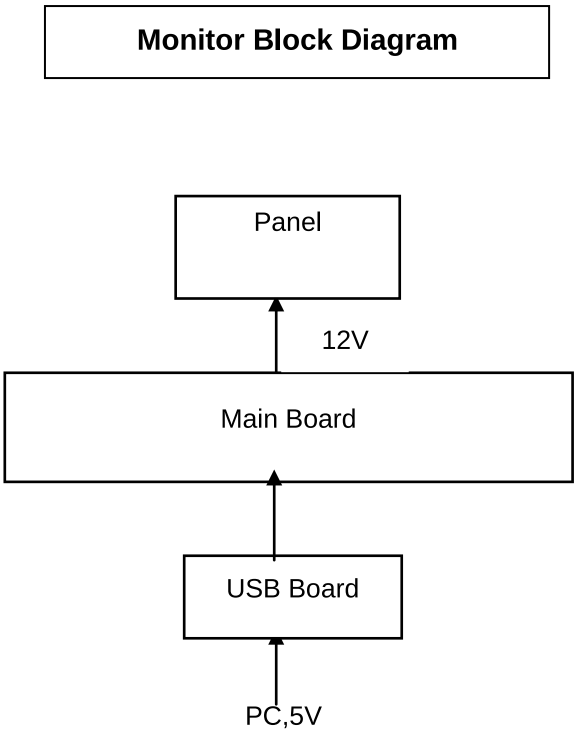
TO ENSURE THE CONTINUED RELIABILITY OF THIS PRODUCT, USE ONLY ORIGINAL MANUFACTURER'S REPLACEMENT PARTS, WHICH ARE LISTED WITH THEIR PART NUMBERS IN THE PARTS LIST SECTION OF THIS SERVICE MANUAL.
Take care during handling the LCD module with backlight unit
-Must mount the module using mounting holes arranged in four corners.
-Do not press on the panel, edge of the frame strongly or electric shock as this will result in damage to the screen.
-Do not scratch or press on the panel with any sharp objects, such as pencil or pen as this may result in damage to the panel.
-Protect the module from the ESD as it may damage the electronic circuit (C-MOS).
-Make certain that treatment person’s body is grounded through wristband.
-Do not leave the module in high temperature and in areas of high humidity for a long time.
-Avoid contact with water as it may a short circuit within the module.
-If the surface of panel becomes dirty, please wipe it off with a soft material. (Cleaning with a dirty or rough cloth may damage the panel.)

1.Monitor Specifications

Panel	Model name	e1649Fwu
	Driving system	TFT Color LCD
	Viewable Image Size	39.49cm diagonal
	Pixel pitch	0.252(H)mm x 0.252(V)mm
	Video	R, G, B Analog interface
	Separate Sync.	NA
	Display Color	262K Colors
	Dot Clock	85.5MHz
Resolution	Horizontal scan range	48kHz
	Horizontal scan Size(Maximum)	344.23mm
	Vertical scan range	60Hz
	Vertical scan Size(Maximum)	193.54mm
	Optimal preset resolution	1366×768@60Hz
	Plug & Play	VESA DDC2B
	Input Connector	Mini USB
	Input Video Signal	NA
	Power Source	PC USB 5V
	Power Consumption	8 W
		Standby < 1 W
	Off timer	NA
Physical Characteristics	Connector Type	Mini USB
	Signal Cable Type	Detachable
	Dimensions & Weight:	
	Height	232.7mm
	Width	371.9 mm
	Depth	35.5 mm
	Weight (monitor only)	1060 g
	Weight (with packaging)	1700 g
Environmental	Temperature:	
	Operating	0° to 40°
	Non-Operating	-25°to 55°
	Humidity:	
	Operating	10% to 85% (non-condensing)
	Non-Operating	5% to 93% (non-condensing)
	Altitude:	
	Operating	0~ 3658m (0~ 12000 ft)
	Non-Operating	0~ 12192m (0~ 40000 ft)

2.LCD Monitor Description

The LCD monitor will contain a main board, a USB board，the PC will provide power.



3. Operating Instructions

3.1 Connecting the Monitor

Cable Connections In Rear of Monitor to Connect PC/Laptop:

Important!! Follow the software installation described on page 11 to 15 before connecting the USB monitor to your Laptop/PC.



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1 Connecting the LCD monitor to your computer
To protect the equipment, always turn off the computer before connecting.
- Connect one end of the USB cable to the LCD monitor and the end of USB cable to the computer.
- Your computer should detect the USB Monitor automatically.

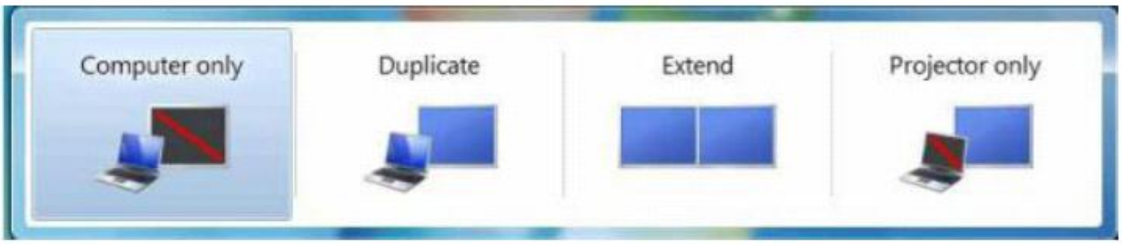
Follow the procedure described starting on page 16 to configure your USB Monitor. Note: Some computers may not provide enough power to the LCD monitor from one USB port.
If so, connect the other USB connector on the Y end of the cable into another USB on your computer.

3.2 Control the Display

You can use the AOC USB LCD monitor in mirror mode or extended mode. Settings may vary depending on your operating system.

For Microsoft® Windows® 7

Press the Windows® key ( ) + P to switch between different modes as shown below.



For Microsoft® Windows® XP and Microsoft® Windows Vista®

Right-click the “ ”icon in the system tray of your Windows ® desktop to configure the display settings

Disconnecting the LCD Monitor

1. For Microsoft® Windows® 7 only, you can turn the monitor OFF by pressing the Windows key ( ) + P, and then selecting “Computer only”. For Microsoft® Windows vista® and Windows® XP, you can select OFF by right-Clicking

the “” icon in the system tray.

2. Remove the USB cable from the computer and monitor.

3.3 Setting the USB Monitor

Follow this procedure to configure the AOC Monitor

1. Open screen resolution
2. Set the display options. Refer to the table below for details on each option.

Menu	Sub-Menu	Description
Display		Use the drop down list to select a display to be configured.
Resolution		Use the drop down list and user the slider to choose a resolution
Orientation	Landscape	Set the display to landscape view
	Portrait	Set the display to portrait mode
	Landscape (flipped)	Set the display to upside down landscape mode
	Portrait (flipped)	Set the display to upside down portrait mode
Multiple Displays	Duplicates these displays	Reproduces the main display on the second display
	Extend these displays	Extends the main display on the secondary display
	Show Desktop only on 1	The desktop appears on the display marked 1. The display marked 2 become blank.
	Shows Desktop only on 2	The desktop appears on the display marked 2. The display marked 1 become blank.

To control the behavior of an attached AOC USB monitor, it is also possible to use Windows Key ( ) + P to display a menu (and cycle through it) to switch mode.

3.4 new technology

The AOC e1649Fwu monitor supports an auto-pivot function to keep the display upright as the monitor is rotated between portrait and landscape position. The monitor has to be rotated slowly and over 75◦with the tilt angle within 30◦to activate the auto-pivot function. The default setting for auto-pivot is on. You need to disable the auto-pivot function if you would like to manually rotate the display. If the auto-pivot is not functioned, rotate the display using orientation menu, then set the auto-pivot to on again.

4. Panel Specification

4. 1 General Features

B156XW02 V6 is a Color Active Matrix Liquid Crystal Display composed of a TFT LCD panel, a driver circuit, and LED backlight system. The screen format is intended to support the 16:9 HD, 1366(H) x768(V) screen and 262k colors (RGB 6-bits data driver) with LED backlight driving circuit. All input signals are LVDS interface compatible. B156XW02 V6 is designed for a display unit of notebook style personal computer and industrial machine.

4.2 General Specifications

Items	Unit	Specifications			
Screen Diagonal	[mm]	394.91			
Active Area	[mm]	344.23 X193.54			
Pixels H x V		1366x3(RGB) x 768			
Pixel Pitch	[mm]	0.252X0.252			
Pixel Format		R.G.B. Vertical Stripe			
Display Mode		Normally White			
White Luminance (I_{LED}=20mA) **(Note: ILED is LED current)**	[cd/m^2]	200 typ. (5 points average)			
Luminance Uniformity		1.25 max. (5 points)			
Contrast Ratio		500 typ			
Response Time	[ms]	16 Max			
Nominal Input Voltage VDD	[Volt]	+3.3 typ.			
Power Consumption	[Watt]	4.5 max. (Include Logic and Blu power)			
Weight	[Grams]	450 max.			
Physical Size **Include bracket**	[mm]		Min.	Typ.	Max.
		Length	-	359.3	359.8
		Width	-	209.5	210
		Thickness	-	-	5.5
Electrical Interface		1 channel LVDS			
Glass Thickness	[mm]	0.5			
Surface Treatment		Glare, Hardness 3H, Reflection 4.3%			
Support Color		262K colors (RGB 6-bit)			

Temperature Range Operating Storage (Non-Operating)	 [^{o}C] [^{o}C]	 0 to +50 -20 to +60
RoHS Compliance		RoHS Compliance

4.3 Electrical Characteristics

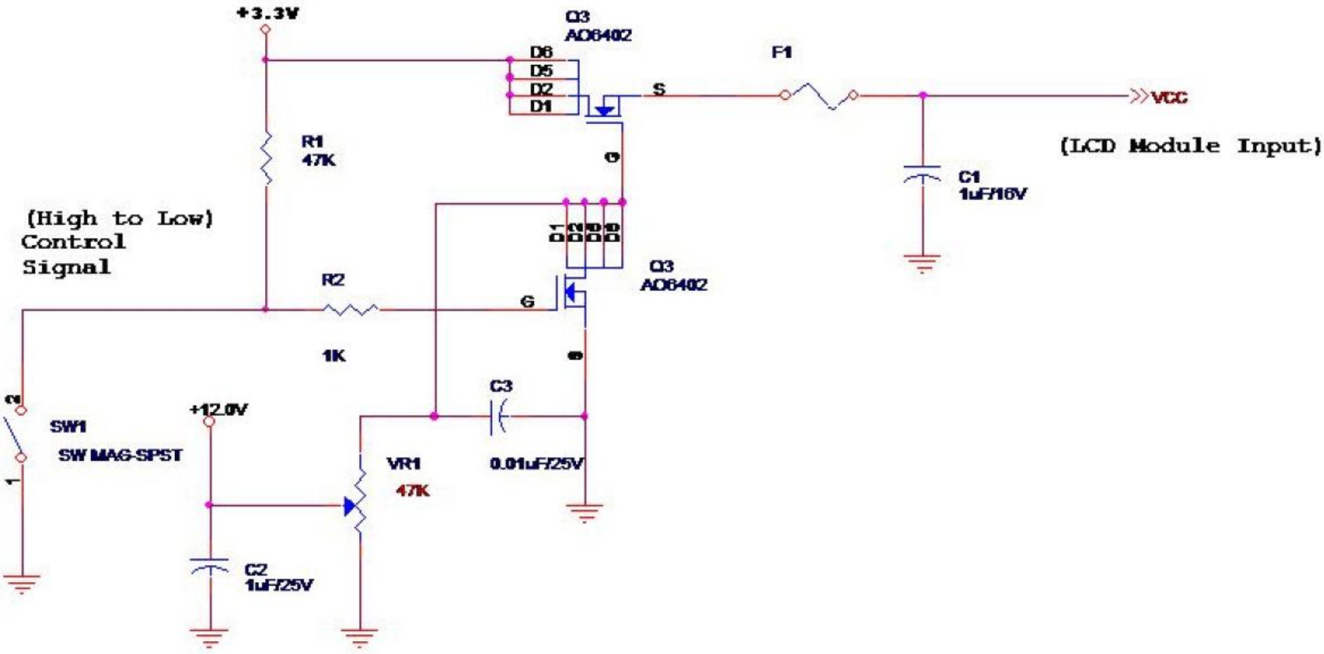
Electrical characteristics

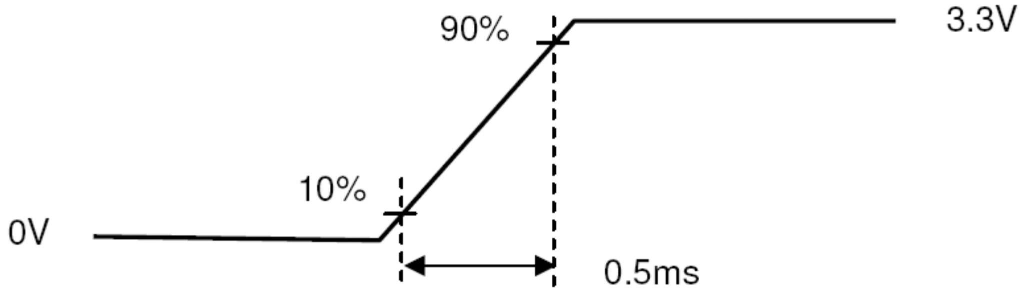
Symble	Parameter	Min	Typ	Max	Units	Note
VDD	Logic/LCD Drive Voltage	3.0	3.3	3.6	[Volt]	
PDD	VDD Power	-	-	1.2	[Watt]	Note 1
IDD	IDD Current	-	250	550 700	[mA]	Note 1 Note 3
IRush	Inrush Current	-	-	1500	[mA]	Note 2
VDDrp	Allowable Logic/LCD Drive Ripple Voltage	-	-	100	[mV] p-p	

Note 1:Maximum Measurement Condition：Black Pattern at 3.3V driving voltage. (Pmax=V3.3 x Iblack)

Note 2:Measure Condition

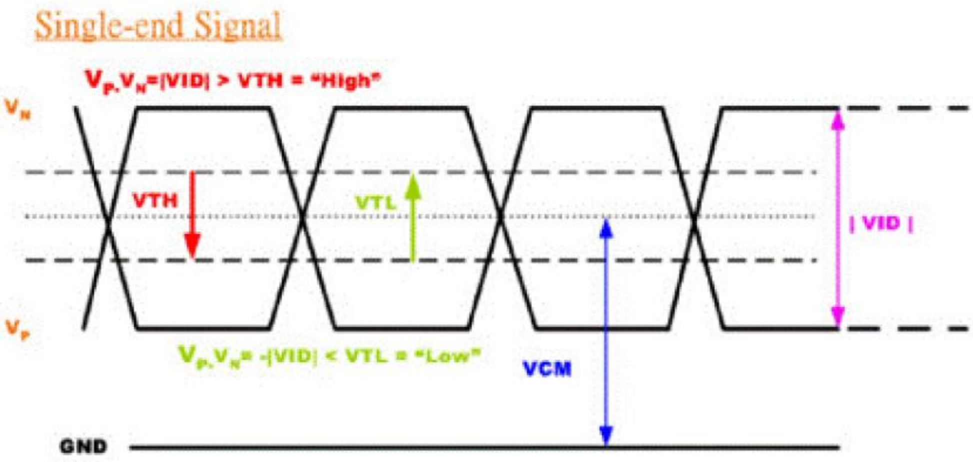
Note 3 : Maximum Measurement Condition 2：Black Pattern at 3.3V driving voltage, frame rate@75Hz. (Pmax=V3.3 x Iblack)





Parameter	Condition	Min	Max	Unit
V_{TH}	Differential Input High Threshold (Vcm=+1.2V)		100	[mV]
V_{TL}	Differential Input Low Threshold (Vcm=+1.2V)	-100	-	[mV]
$\|V_{ID}\|$	Differential Input Voltage	100	600	[mV]
V_{CM}	Differential Input Common Mode Voltage	1.125	1.375	[V]

Note: LVDS Signal Waveform



LED array electrical characteristics

Parameter	Symbol	Min	Typ	Max	Units	Condition
Backlight Power Consumption	PLED	-	2.75	-	[Watt]	(Ta=25℃), Note 1 Vin =12V
LED Life-Time	N/A	10,000	-	-	Hour	(Ta=25℃), Note 2 I_F=20 mA

Note 1: Calculator value for reference PLED = VF (Normal Distribution) * IF (Normal Distribution) / Efficiency
Note 2: The LED life-time define as the estimated time to 50% degradation of initial luminous.

Parameter	Symbol	Min	Typ	Max	Units	Remark
LED Power Supply	VLED	6.0	12.0	21.0	[Volt]	Define as Connector Interface (Ta=25℃)
LED Enable Input High Level	VLED_EN	2.5	-	5.5	[Volt]	
LED Enable Input Low Level		-	-	0.8	[Volt]	
PWM Logic Input High Level	VPWM_EN	2.3	-	5.5	[Volt]	
PWM Logic Input Low Level		-	-	0.8	[Volt]	
PWM Input Frequency	FPWM	700	1K	2K	Hz	
PWM Duty Ratio	Duty	5	--	100	%	

4.4 Optical Characteristics

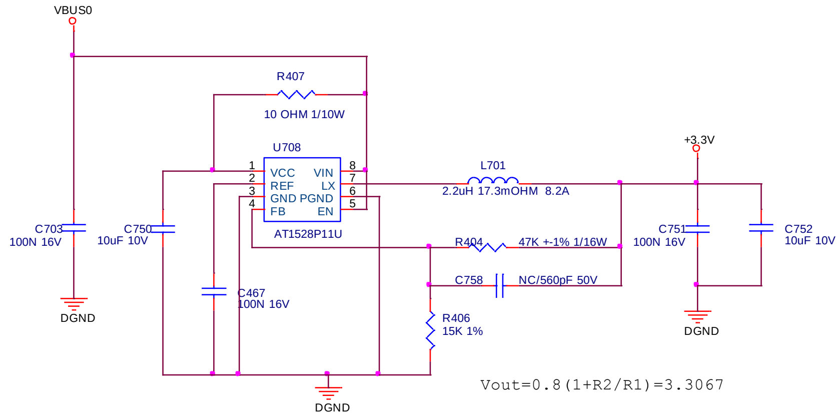
Ta= 25°C

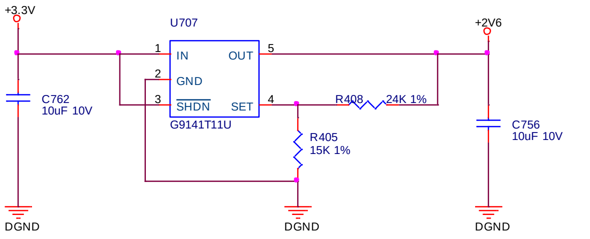
Item		Symbol	Conditions	Min.	Typ.	Max.	Unit
White Luminance I_{LED}=20mA			5 points average	170	200	-	cd/m²
Viewing Angle		θ_R	Horizontal (Right) CR = 10	40	45	-	degree
		θ_L	Horizontal (Left) CR = 10	40	45	-	
		ϕ_H	Vertical (Upper) CR = 10	10	15	-	
		ϕ_L	Vertical (Lower) CR = 10	30	35	-	
Luminance Uniformity		δ_{5P}	5 Points	-	-	1.25	
Luminance Uniformity		δ_{13P}	13 Points	-	-	1.50	
Contrast Ratio		CR		-	500	-	
Cross talk		%				4	
Response Time		T_r	Rising	-	-	-	msec
		T_f	Falling	-	-	-	
		T_{RT}	Rising + Falling	-	8	16	
Color / Chromaticity Coodinates	Red	Rx	CIE 1931	0.54	0.572	0.60	
		Ry		0.313	0.343	0.373	
	Green	Gx		0.316	0.346	0.376	
		Gy		0.521	0.551	0.581	
	Blue	Bx		0.127	0.157	0.187	
		By		0.093	0.123	0.153	
	White	Wx		0.283	0.313	0.343	
		Wy		0.299	0.329	0.359	
NTSC		%		-	45	-	

5. Schematic

5.1 Main Board

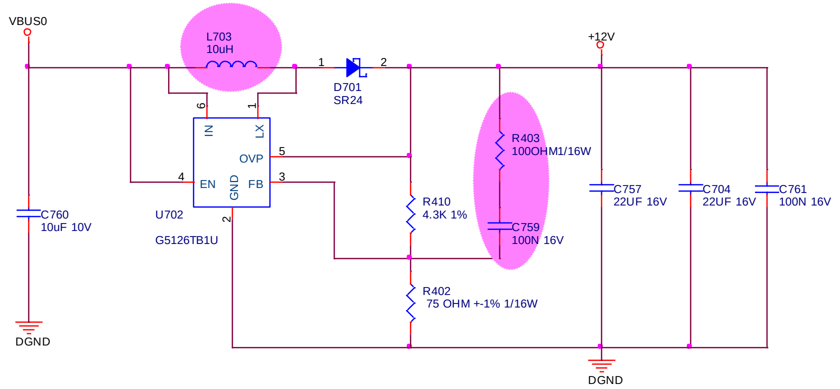
715G4548M01000005I

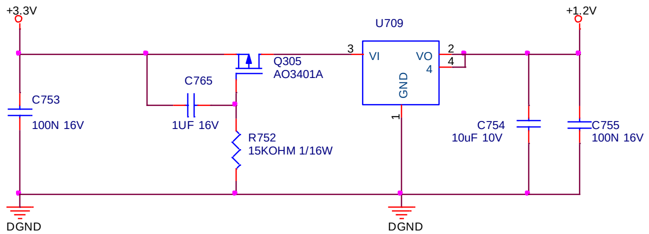




GMT G914T11U Vout=1(1+R2/R1)=2.6, R405=15K

BCD AP2126K-ADJTRG1 Vout=1.25(1+R2/R1)=2.6, R405=22K



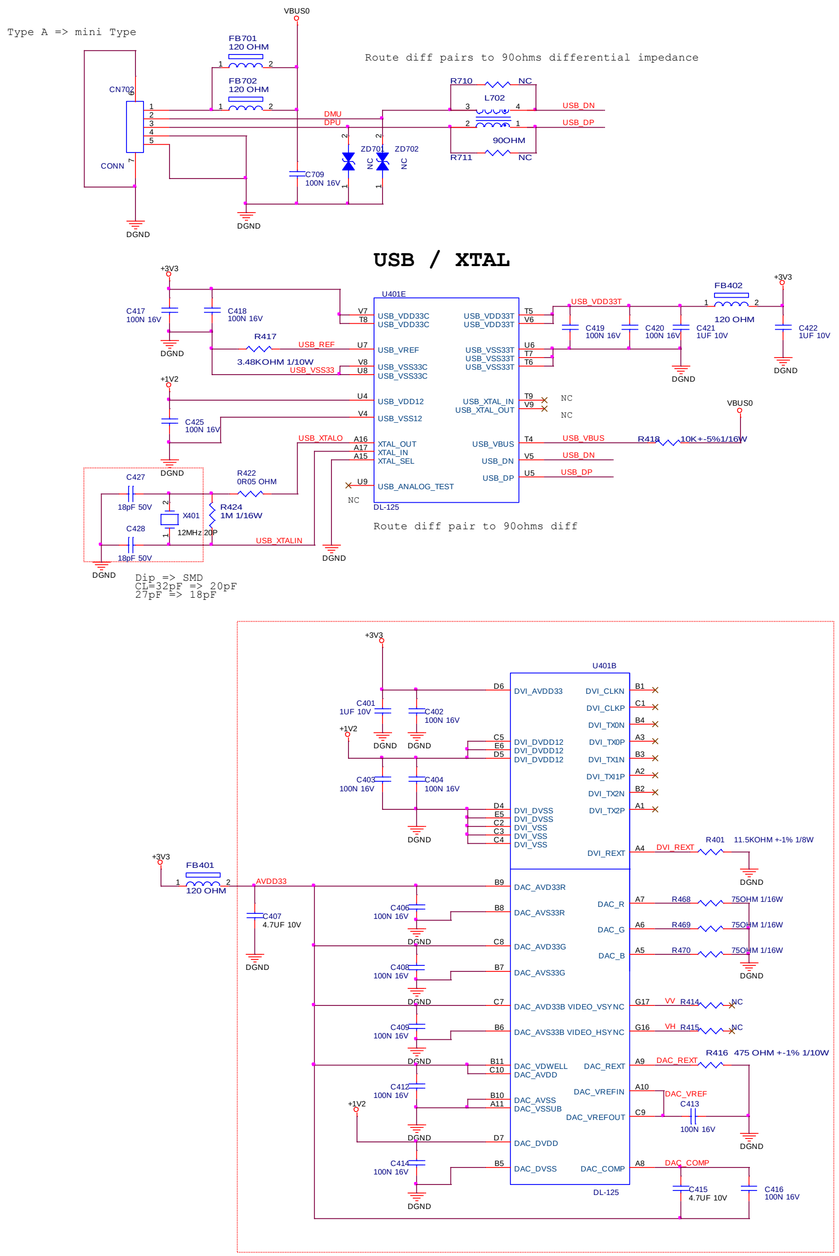


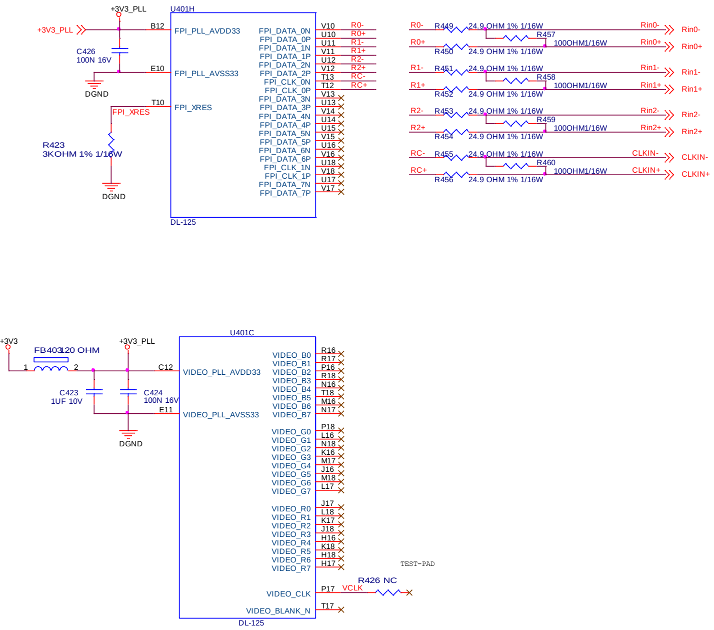
GMT G5126TB1U Vout=0.2(1+R2/R1)=12, R402=75 ohm

BCD AP3031KTR-G1 Vout=0.2(1+R2/R1)=12, R402=75 ohm

T P V (Top Victory Electronics Co., Ltd.)		OEM MODEL	USB power cordless	Size	B
認 關 瓜 劉 覲	G4548-T0B-000-0050-101230	TPV MODEL		Rev	A
Key Component	03. Power	PCB NAME	G4548-T0B-000-0050-1-101230	称 多	<称多>
Date	Thursday, April 28, 2011	Sheet	1 of 7		

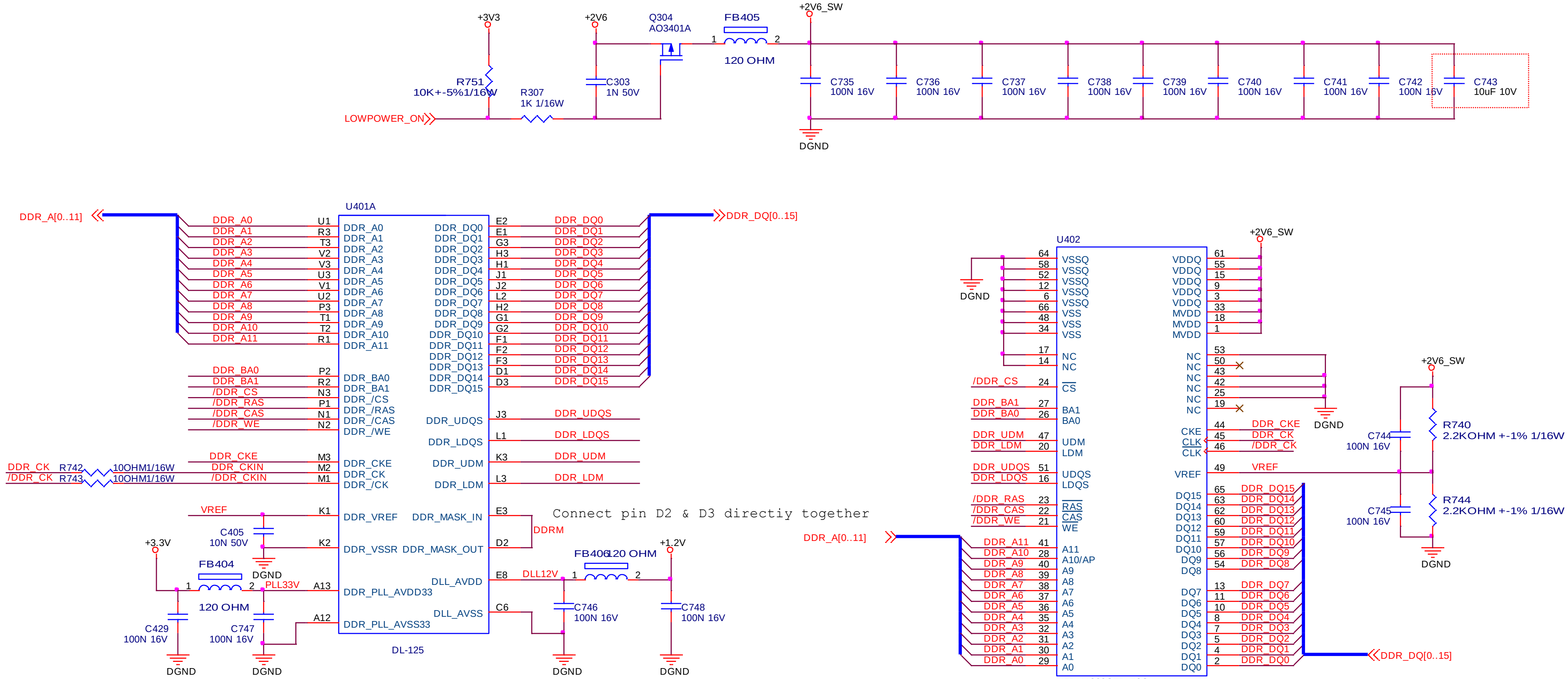
USB / XTAL





T P V (Top Victory Electronics Co., Ltd.)		OEM MODEL	USB power cordless	Size	C
絬隔瓜絪腹	G4548-T0B-000-0050-101230	TPV MODEL		Rev	A
Key Component	04.DL-195 DVI_USB	PCB NAME	G4548-T0B-000-0050-1-101230	称爹	<称爹>
Date	Thursday, April 28, 2011	Sheet	1 of 7		

DDR Memory



DDR_* :

Zo = 65R

Match lengths in following groups :

DDR_LDQS to DDR_LDM & DDR_DQ[0:7] +/- 25ps

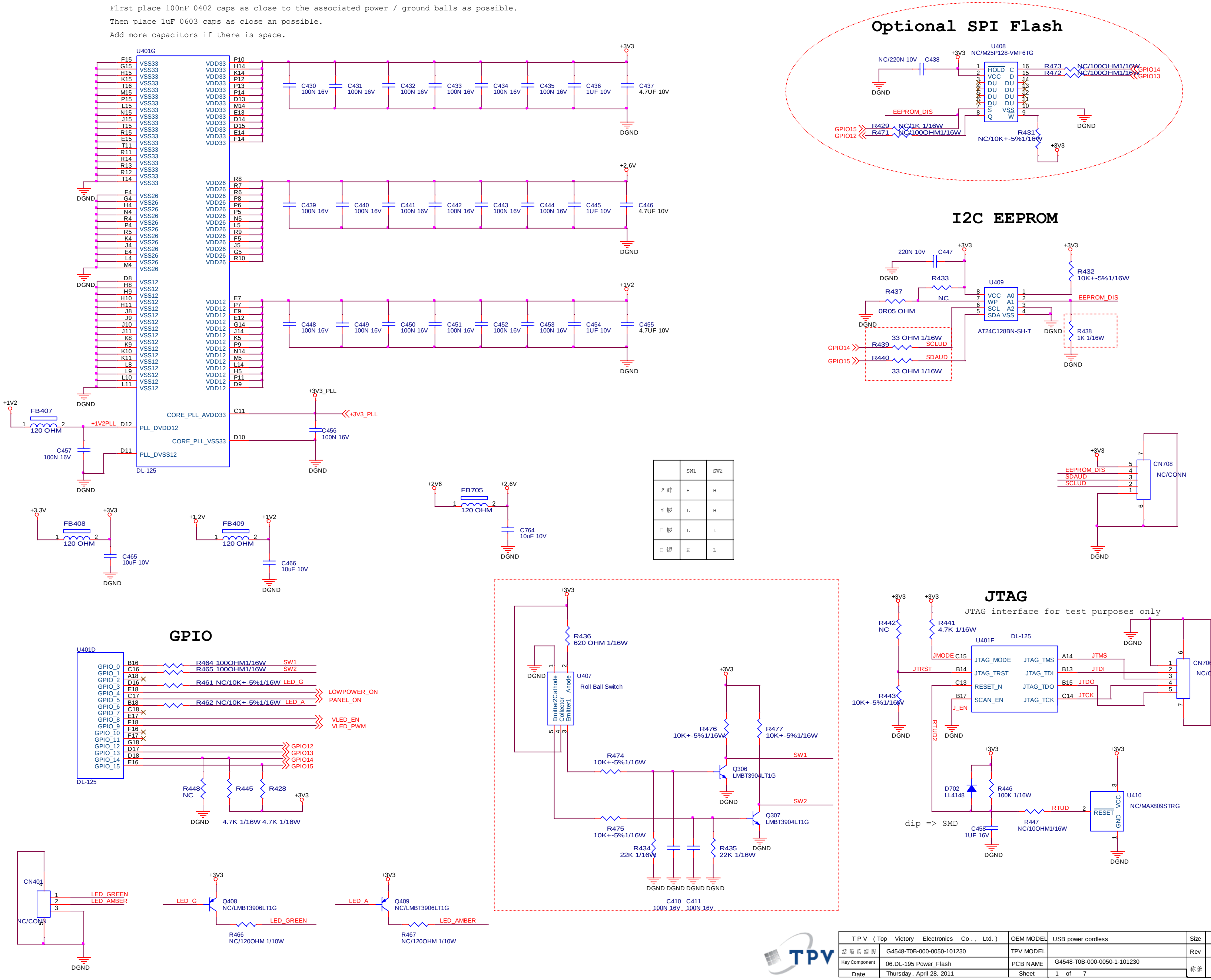
DDR_UDQS to DDR_UDM & DDR_DQ[8:15] +/- 25ps

DDR_CK to LDQS & UDQS < +/- 100ps

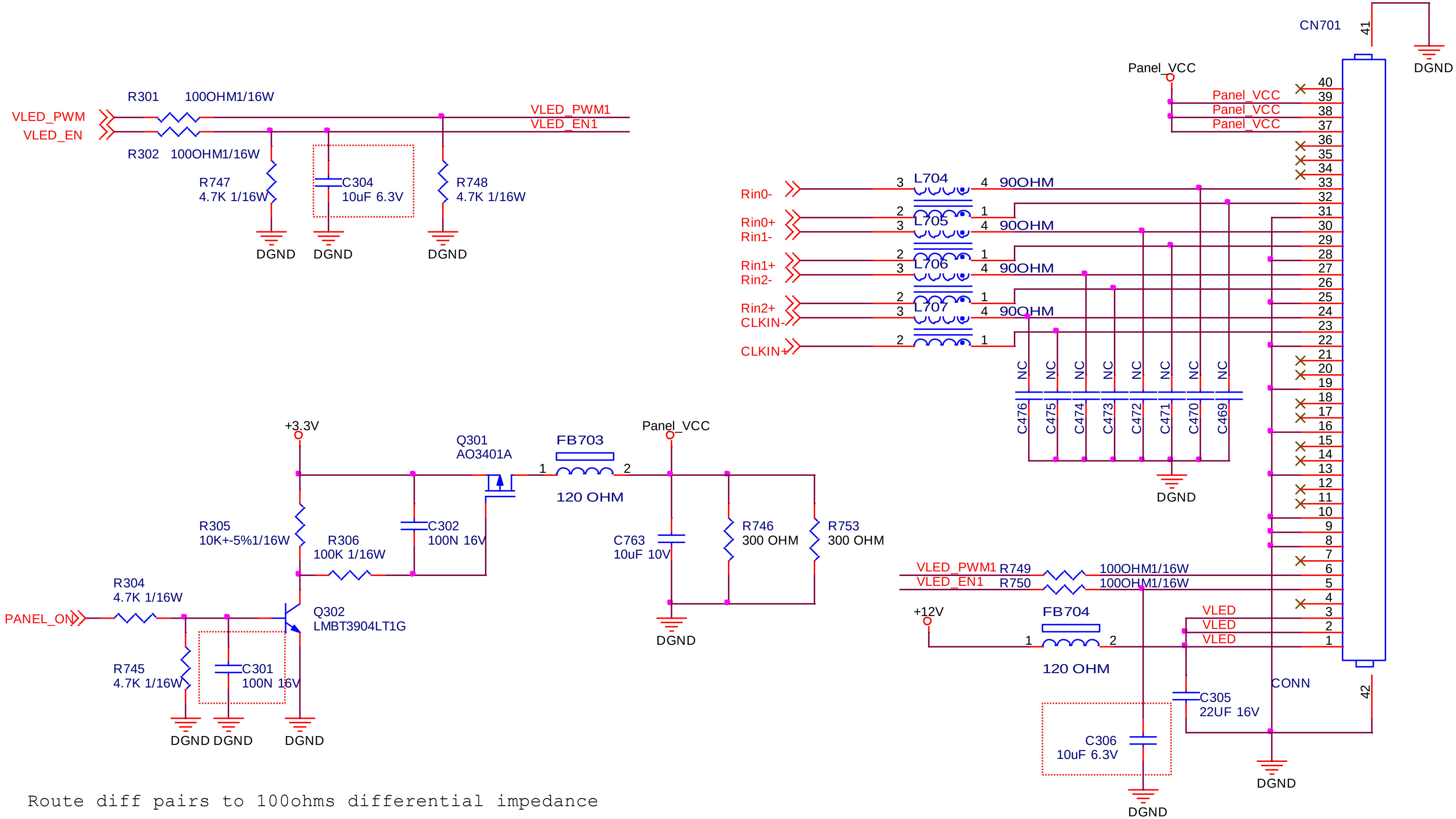
DDR_CK to all others (except DQ[ ]) < +/- 50ps

(DDR Mask should be equal to the sum of LDQS ans UDQS)

TPV (Top Victory Electronics Co., Ltd.)		OEM MODEL	USB power cordless	Size	B
紙 陽 瓜 劉 腹	G4548-T0B-000-0050-101230	TPV MODEL		Rev	A
Key Component	05.DL-195 DDR SDRAM	PCB NAME	G4548-T0B-000-0050-1-101230	称爹	<称爹>
Date	Thursday, April 28, 2011	Sheet	1 of 7		



T P V (Top Victory Electronics Co . , Ltd.)		OEM MODEL	USB power cordless	Size	C
紑 隔 瓜 絪 腹	G4548-T0B-000-0050-101230	TPV MODEL		Rev	A
Key Component	06.DL-195 Power_Flash	PCB NAME	G4548-T0B-000-0050-1-101230	称 爹	<称爹>
Date	Thursday, April 28, 2011	Sheet	1 of 7		



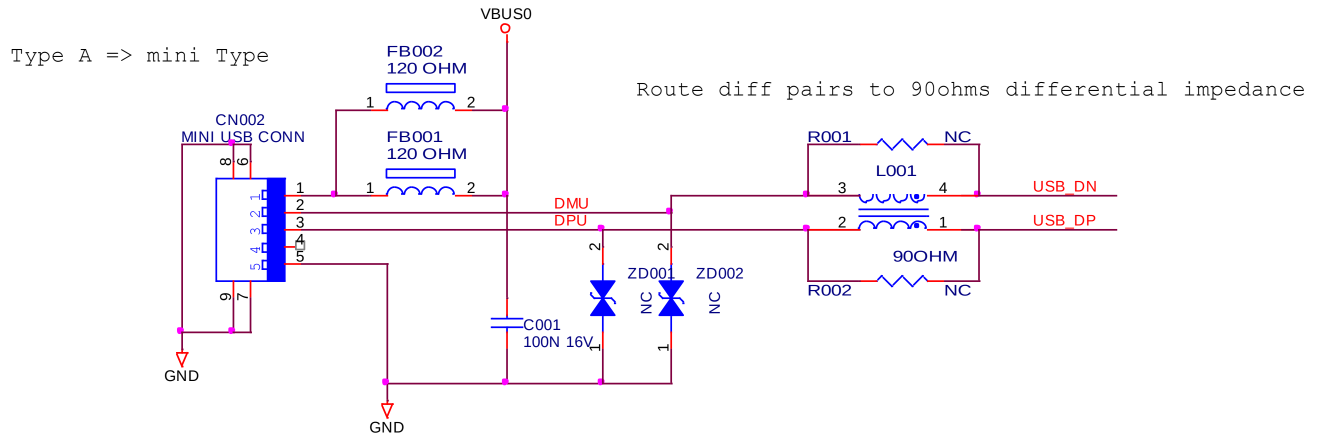
Route diff pairs to 100ohms differential impedance

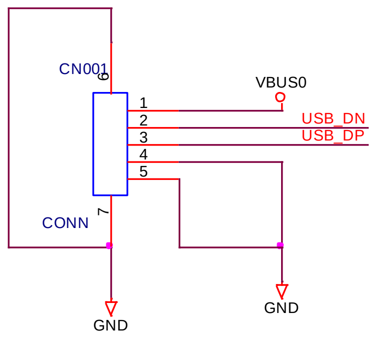
Ensure pairs are routed together

TPV (Top Victory Electronics Co., Ltd.)		OEM MODEL	USB power cordless	Size	Custom
紝隔瓜綑腹	G4548-T0B-000-0050-101230	TPV MODEL		Rev	A
Key Component	07.Panel interface	PCB NAME	G4548-T0B-000-0050-1-101230	称爹	<称爹>
Date	Thursday, April 28, 2011	Sheet	1 of 7		

5.2 USB Board

715G5071T01000004S



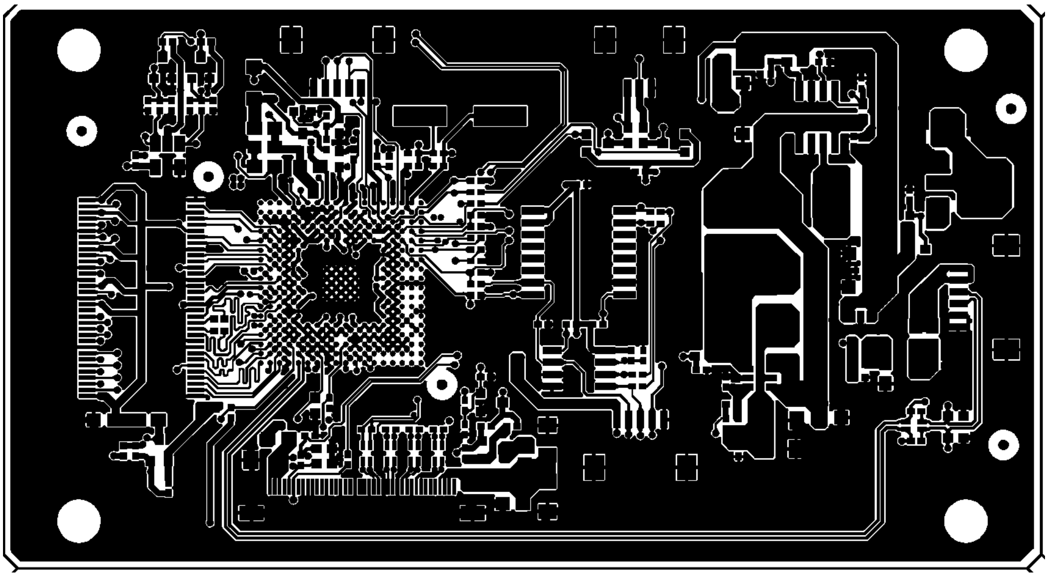


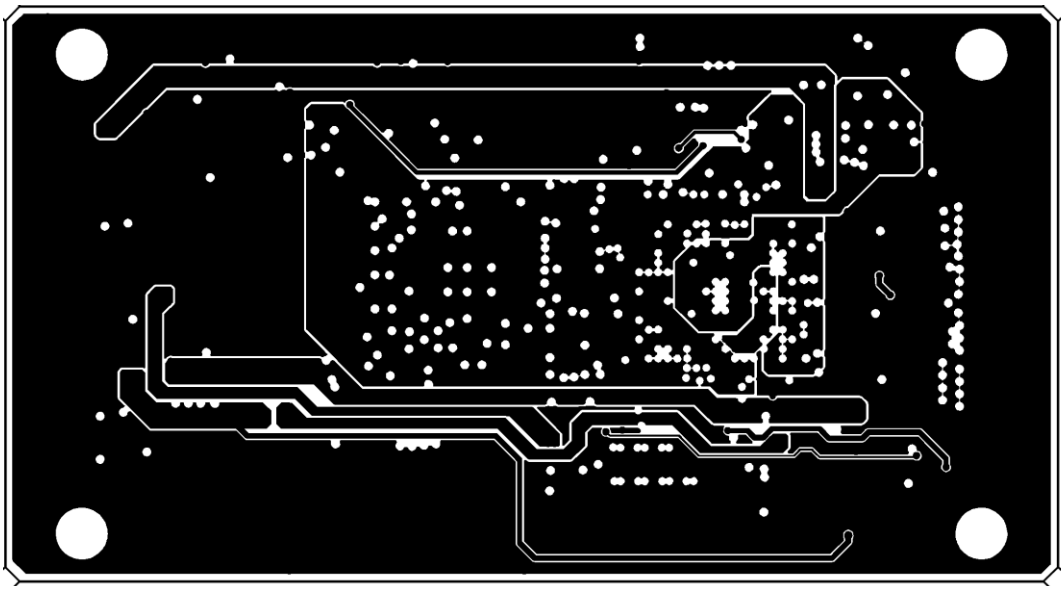
T P V (Top Victory Electronics Co . , Ltd.)		OEM MODEL	AOC e1649Fwu	Size	A
紝 隔 瓜 絪 腹		TPV MODEL		Rev	C
Key Component	2. USB board	PCB NAME	715G	称 爹	<称爹>
Date	Thursday , April 28, 2011	Sheet	2 of 2		

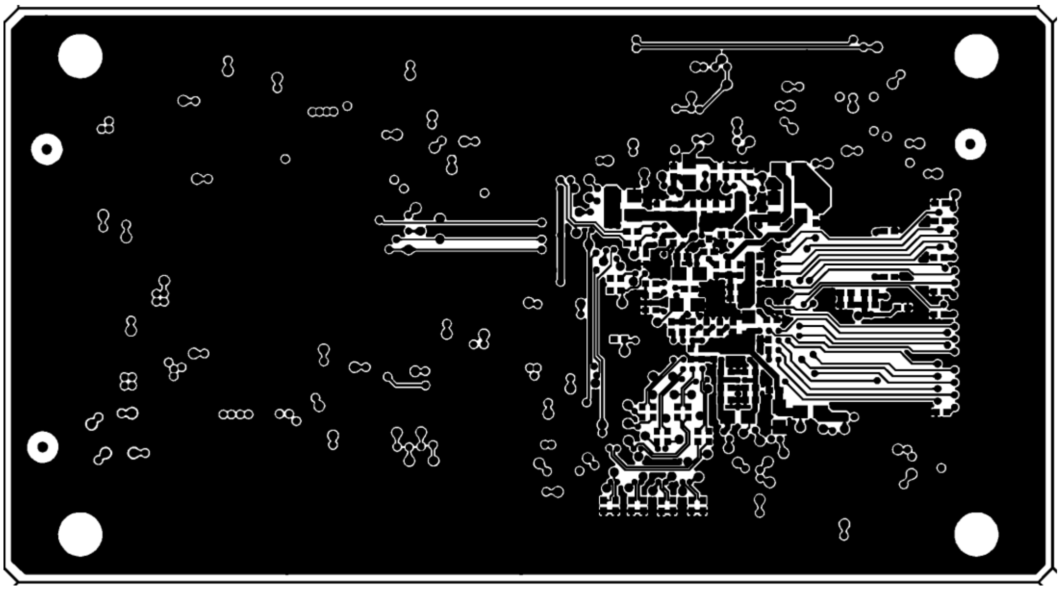
6. PCB Layout

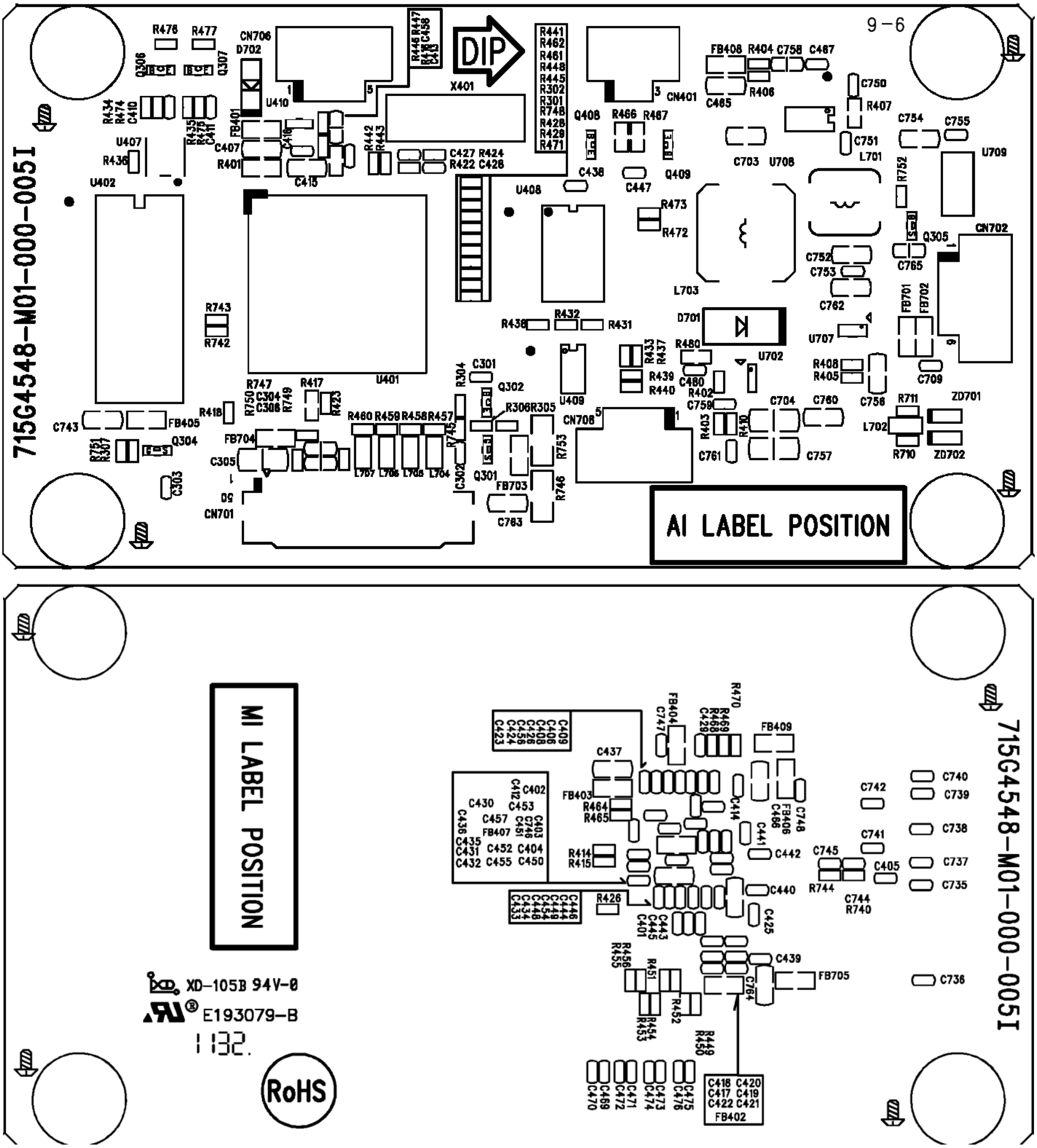
6.1 Main Board

715G4548M01000005I



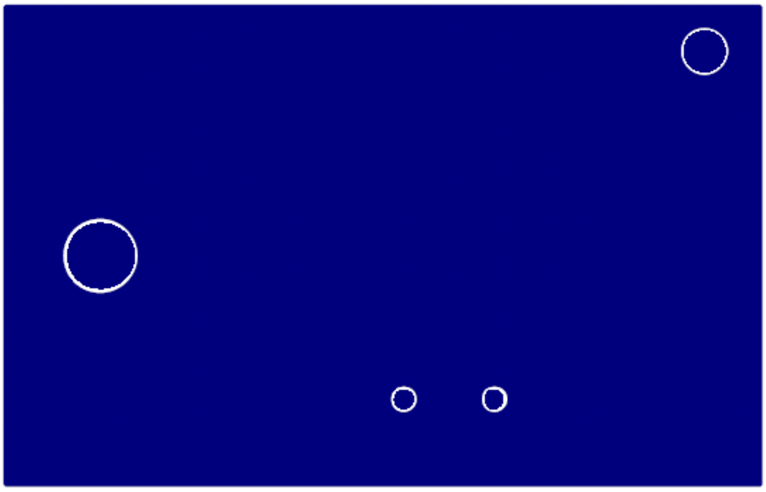


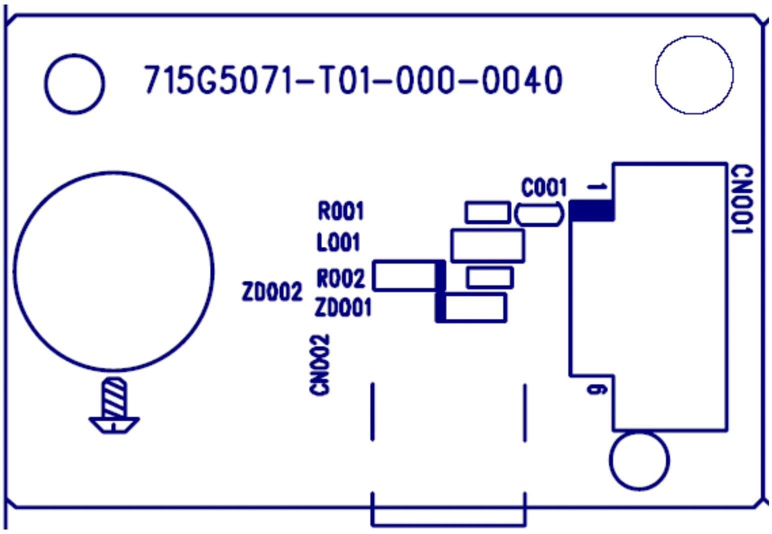


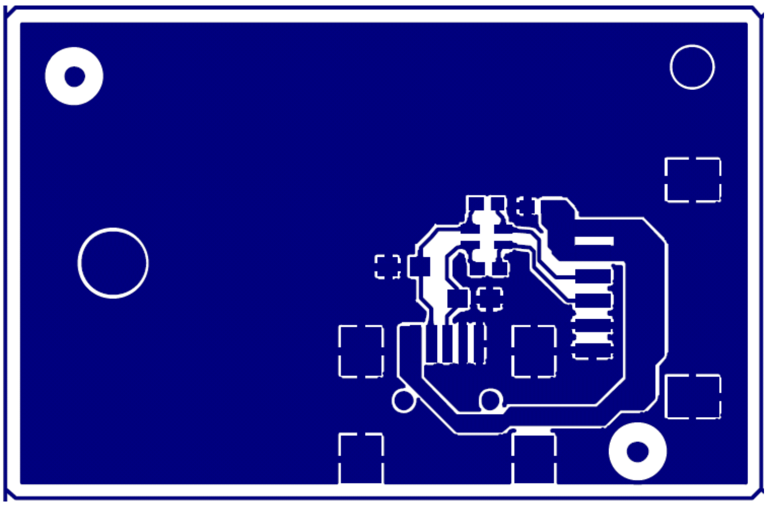

9-6
DIP
715G4548-M01-000-005I
AI LABEL POSITION
MI LABEL POSITION
XD-105B 94V-0
E193079-B
1132.
RoHS

6.3 USB Board

715G5071T01000004S







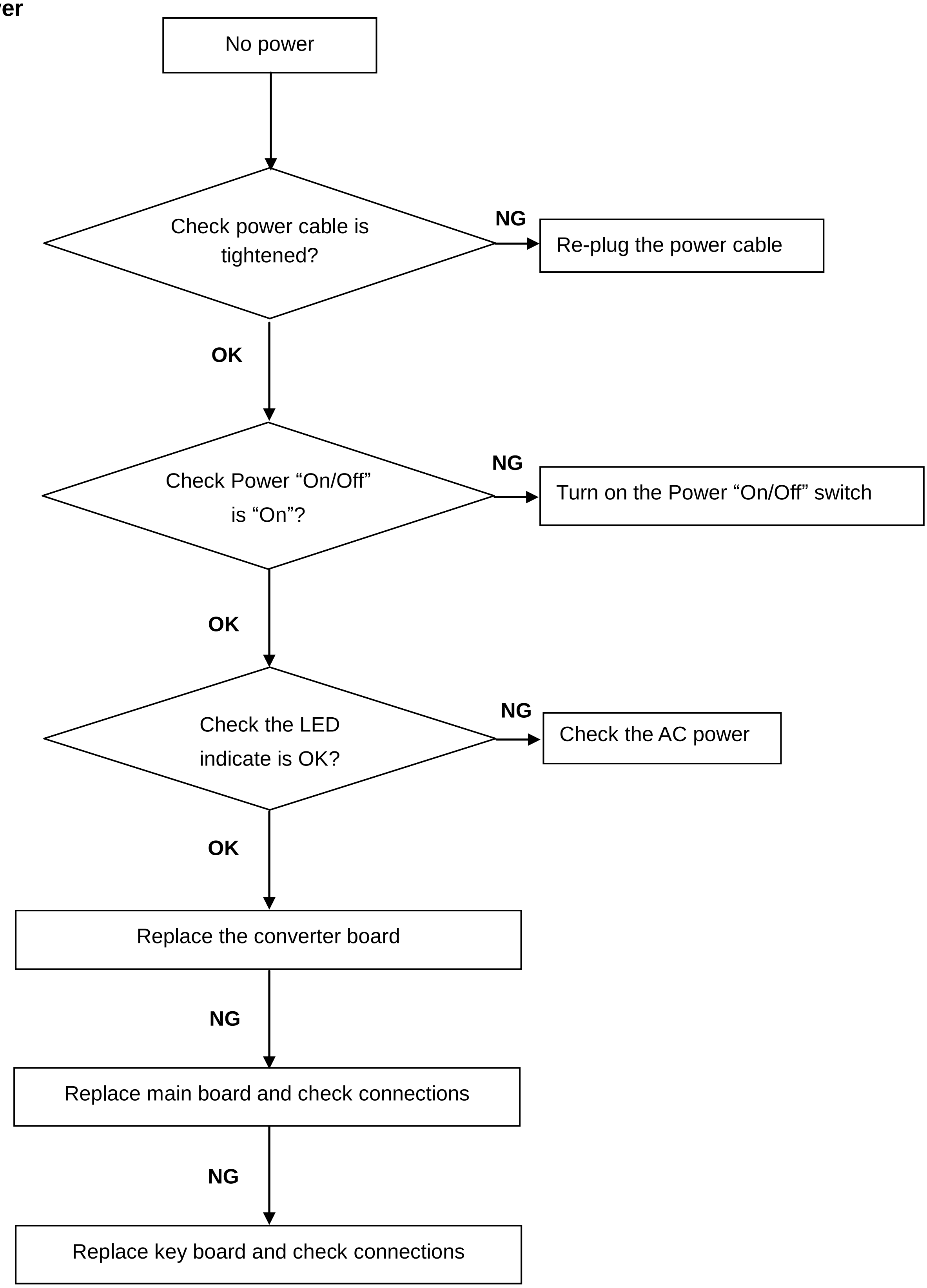
7. Maintainability

7.1 Equipments and Tools Requirement

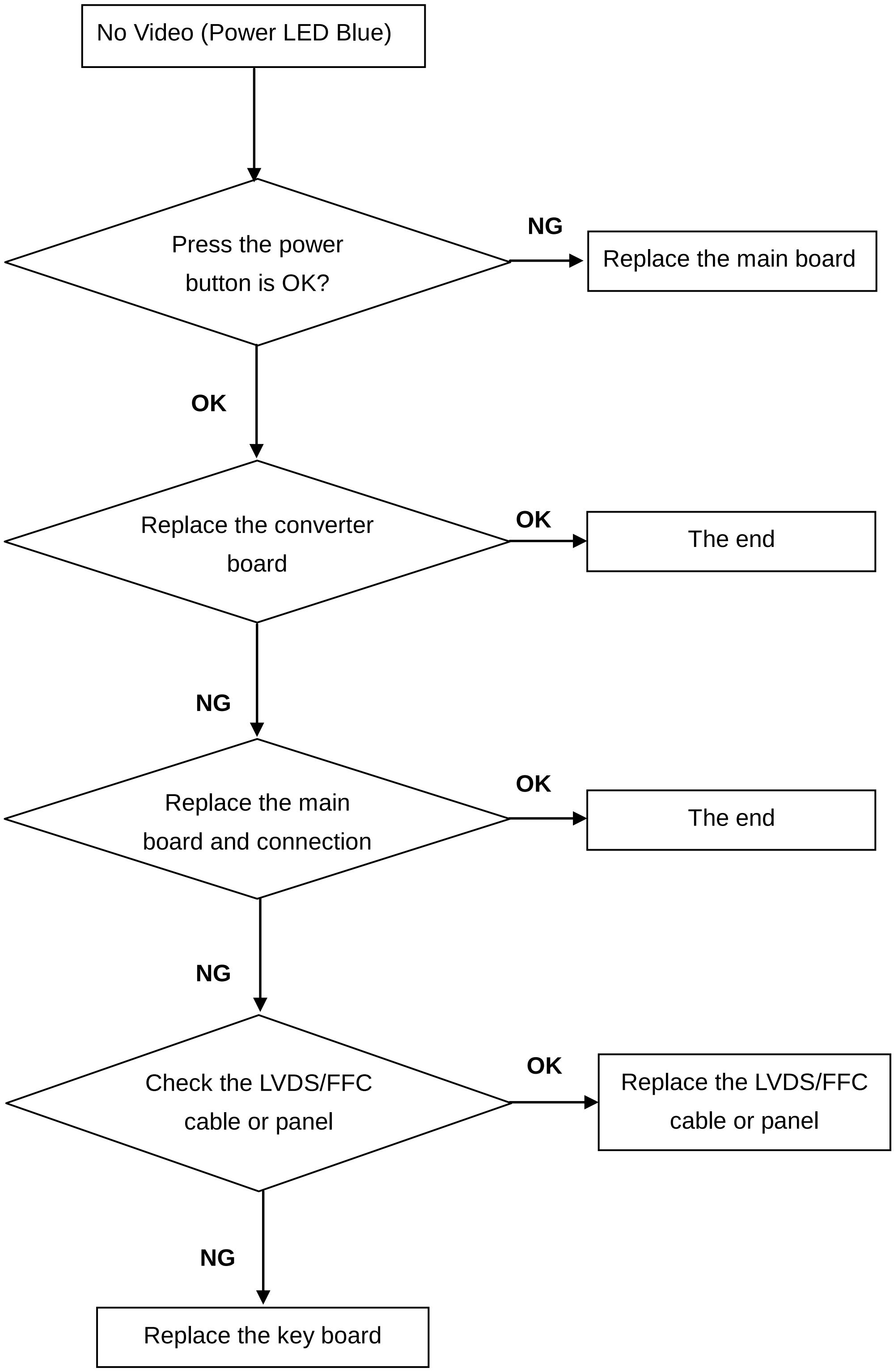
1. Voltmeter.
2. Oscilloscope.
3. Pattern Generator.
4. DDC Tool with an IBM Compatible Computer.
5. Alignment Tool.
6. LCD Color Analyzer.
7. Service Manual.
8. User Manual.

7.2 Trouble Shooting

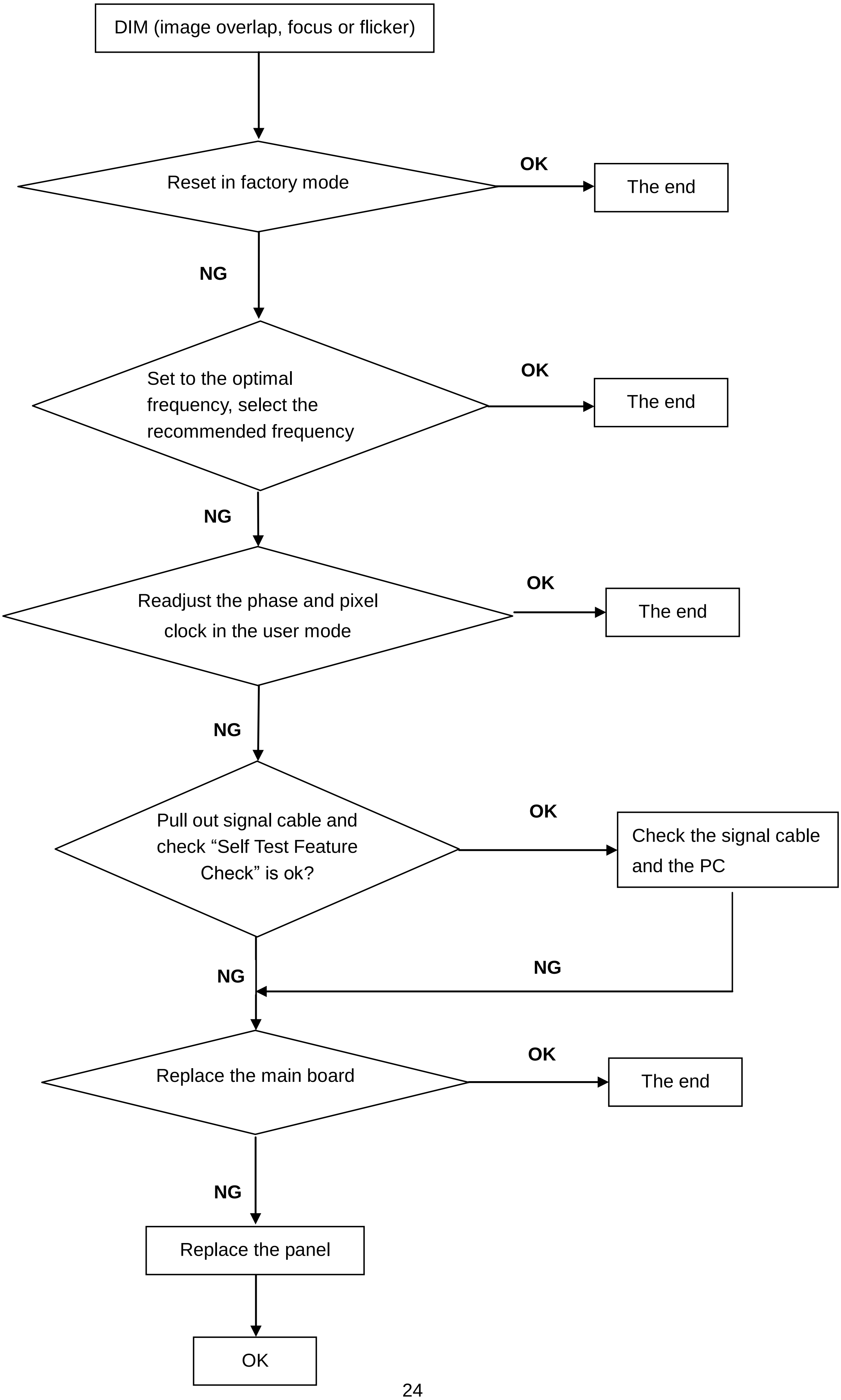
1.No Power



2. No Video (Power LED Blue)

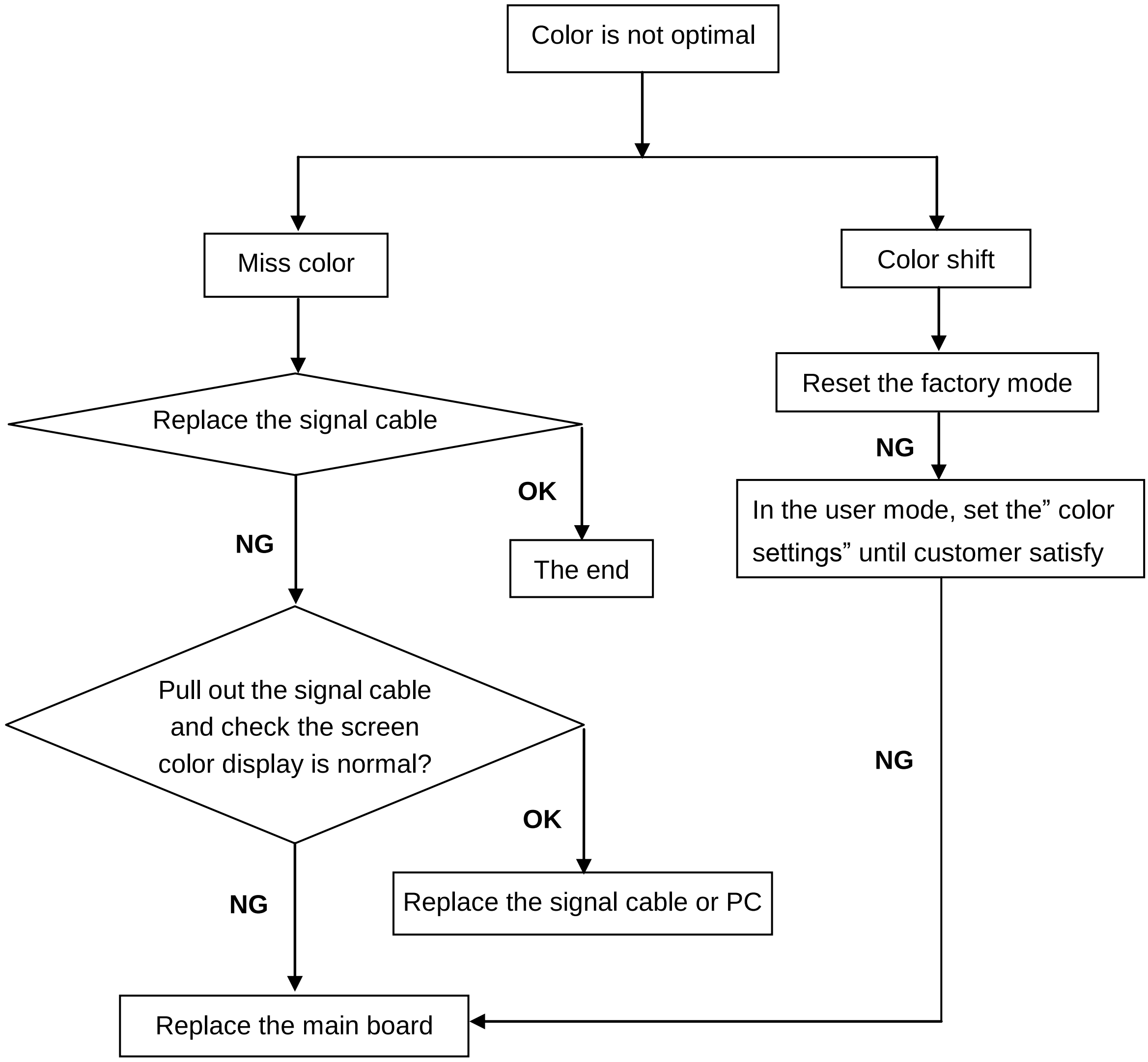


3. DIM



DIM (image overlap, focus or flicker)
Reset in factory mode
OK
The end
NG
Set to the optimal frequency, select the recommended frequency
OK
The end
NG
Readjust the phase and pixel clock in the user mode
OK
The end
NG
Pull out signal cable and check “Self Test Feature Check” is ok?
OK
Check the signal cable and the PC
NG
NG
Replace the main board
OK
The end
NG
Replace the panel
OK

4. Color is not optimal



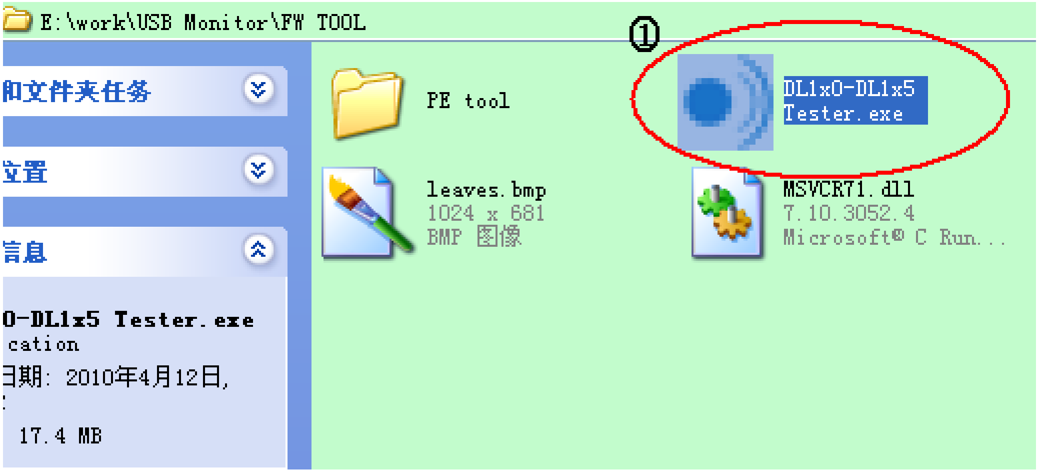
8. Firmware and DDC Instruction

Don't burn HDCP-KEY

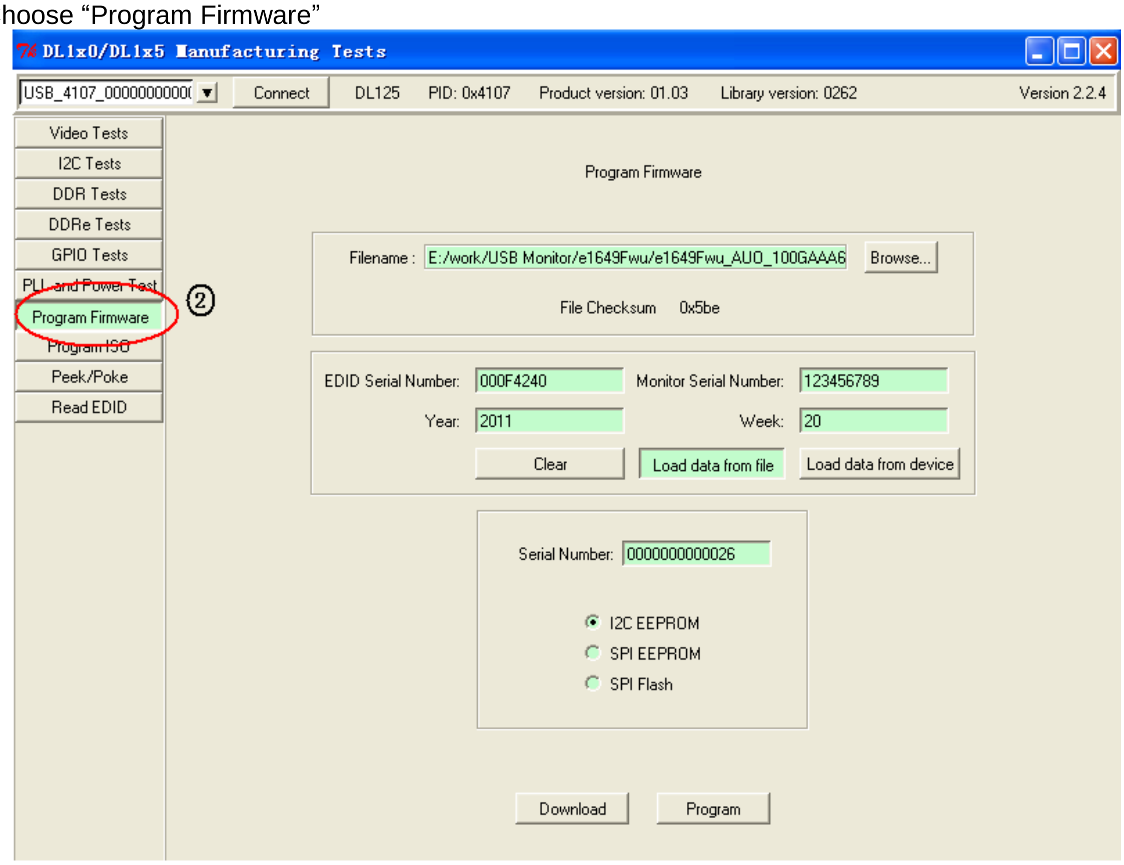
1. Install the newest driver (DLsetup_7.0M1.exe), the driver provided by the Display Link
2. Connect USB Monitor to PC, as the follow picture



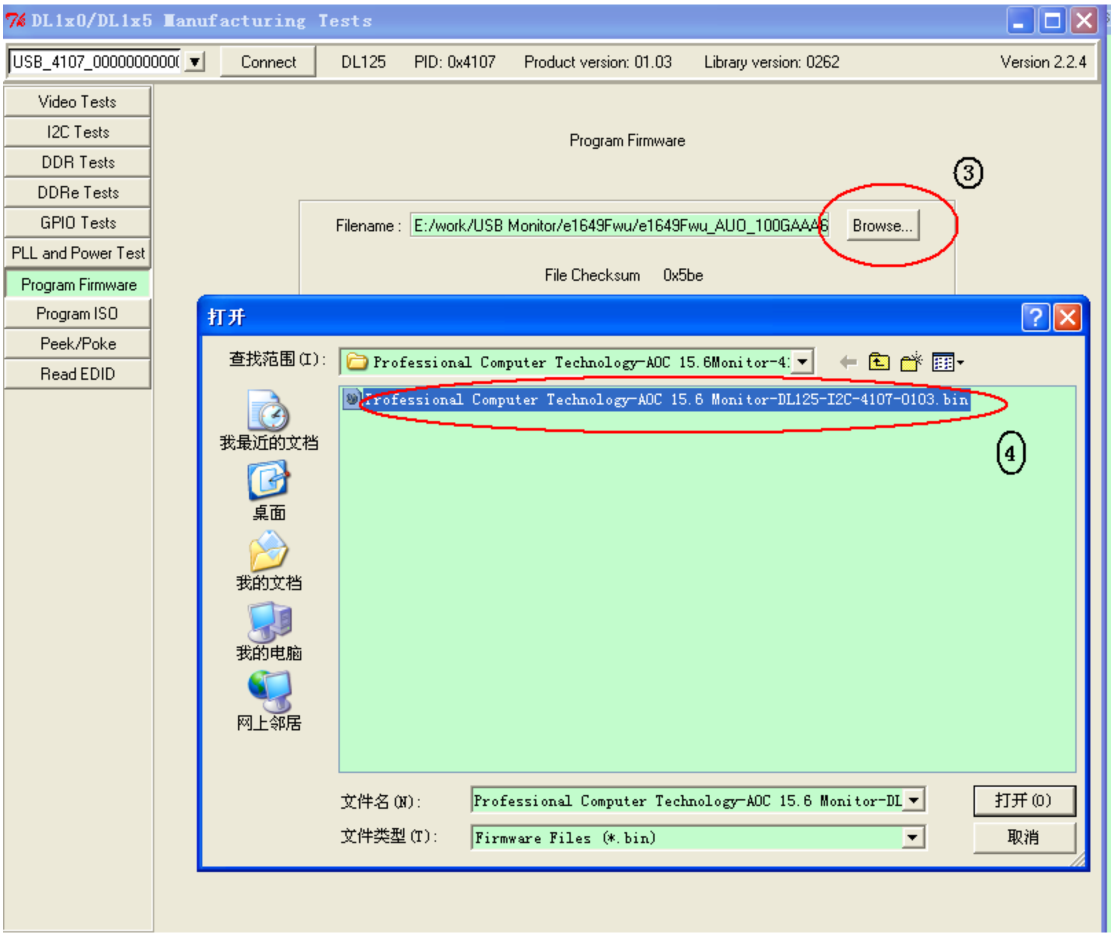
3. Double-click the icon “DL1x0-DL1x5 Tester.exe”

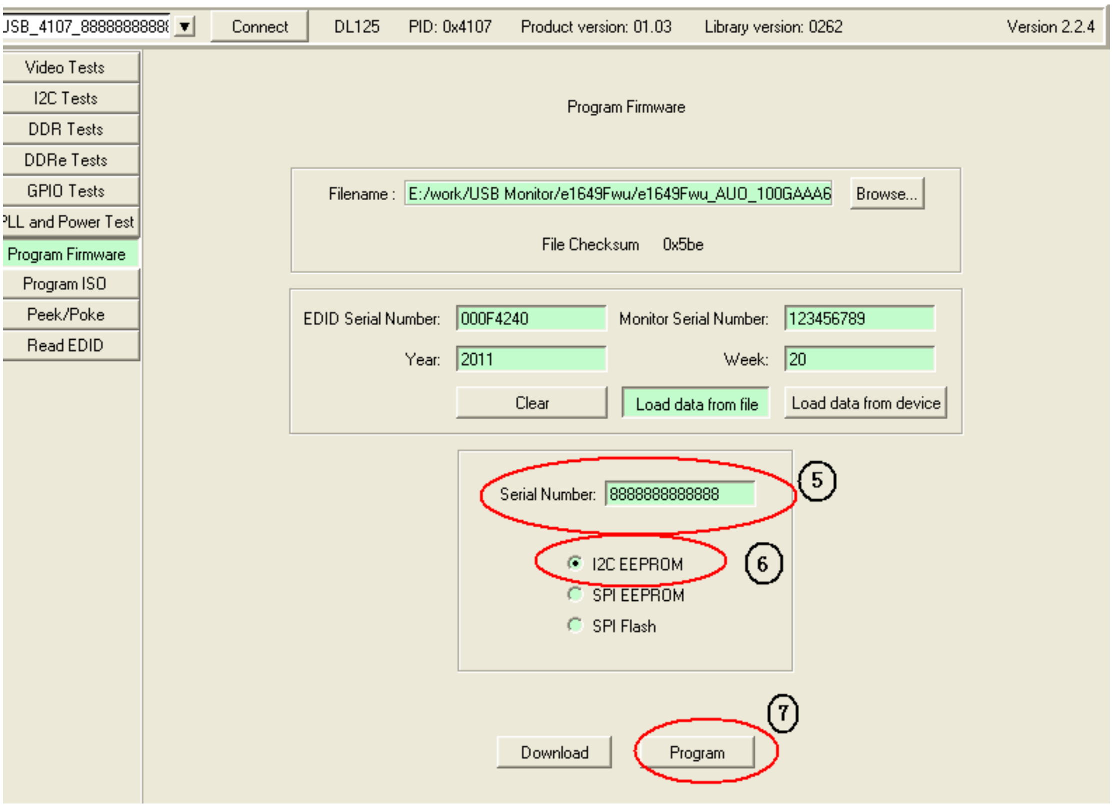


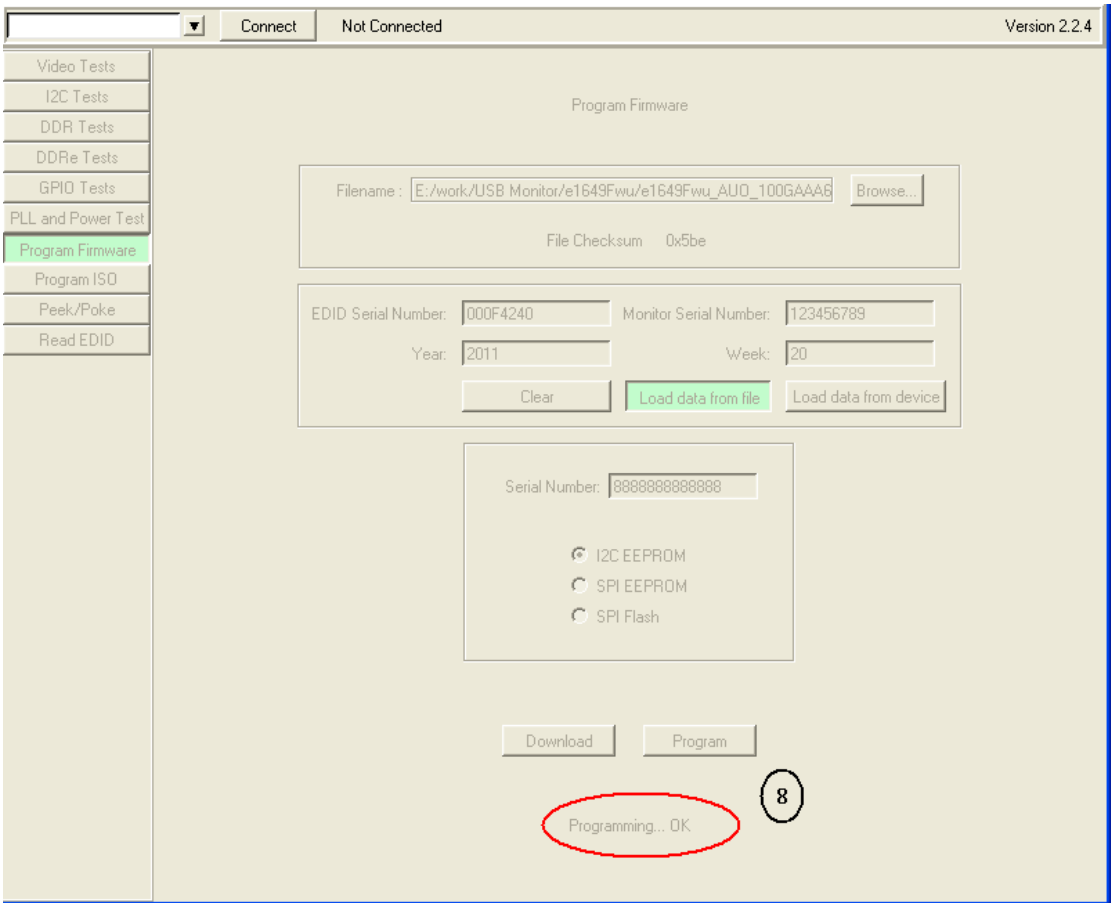
Choose “Program Firmware”



Load Firmware

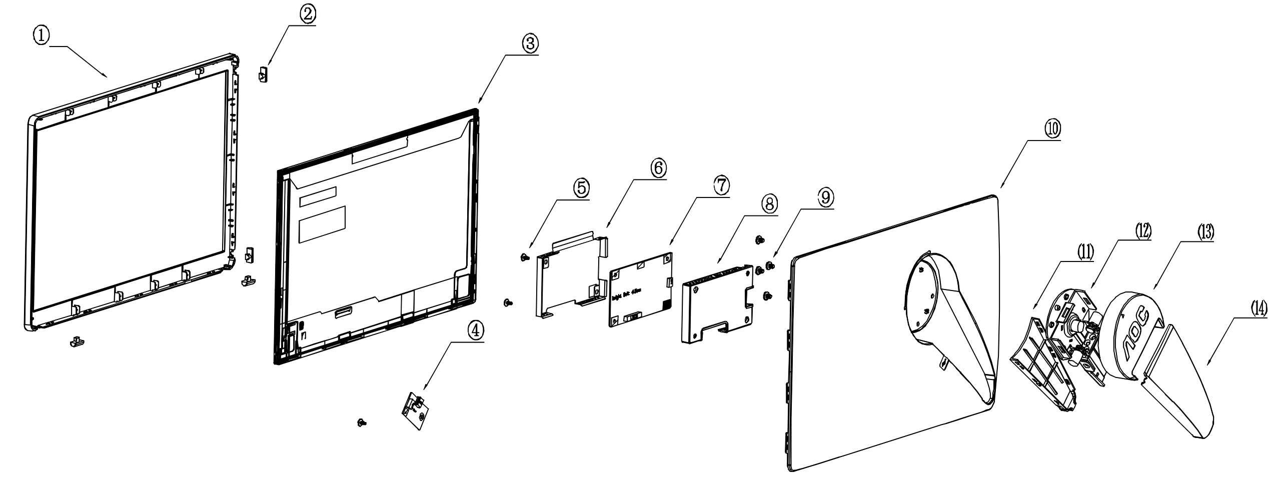






Burning off software, USB Monitor can be displayed

9. Monitor Exploded Views



FIRST USED ON: e1649Fwu
PART No:

REVISION

VERSION A Oct.-27-2011

爆炸图

mengwen.zhu

e1649Fwu

①	A34G2684AEDA1B0100	前框	⑧	A15G1691101	铁件
②	Q12G6300137	脚垫*4pcs	⑨	0M1G2040 5120	Hinge 螺丝*4pcs
③	750NBU156X2617N000	AUO panel	⑩	A34G2685AED 1B0100	后壳
④	USBBHA2	USB板	⑪	A34G2688AED 1B0100	Hinge盖
⑤	0Q1G1030 6120	锁附power-USB板*3pcs	⑫	A37G0276011	Hinge
⑥	A15G1695101	隔离罩	⑬	A34G2686AED 1B0100	支架盖
⑦	power board	power板	⑭	A34G2687AED 1B0100	支架

NOTES

TOLERANCE TO BE FOLLOWINGS UNLESS OTHERWISE BE SPECIFIED :

LENGTH	TOLERANCE
0 ~20mm (included)	±0.10mm
20 ~60mm (included)	±0.15mm
60 ~140mm (included)	±0.20mm
140 ~250mm (included)	±0.25mm
over 250mm	±0.30mm

TPV DISPLAY TECHNOLOGY(WUHAN)CO.,LTD
TEL:027-68843889
FAX:027-68849906

DRAWN BY: mengwen.zhu	FINISH:	COLOR:	UNIT: MM	SCALE:
CHECKED BY:	MATERIAL:		WALL THICKNESS: 2.0MM	DATE: Oct.-27-2011
APPROVED BY:	PART NAME:		PART NO.	VERSION: A

10. BOM List

Note: The parts information listed below are for reference only, and are subject to change without notice. Please go to http://cs.tpv.com.cn/hello1.asp for the latest information.

T6BADL2KBXA1NNE

Location	Part No.	Description	Remark
	052G 2191 A	PAPER TAPE	
E08905	089G 175M05 L	USB CABLE 2.0 mini B to type A+A 1000mm	
ECN701	095G176J40NW04	FFC CABLE 40PIN 210mm 0.5mm	
ECN702	095G8022 6DM01	HARNESS 6P-6P 130mm FQE111052I	
	0M1G2040 5120	SCREW	
	0Q1G 130 8120	SCREW 3x8	
	0Q1G1030 6120	SCREW 3x6	
E750	750NBU156X2617N000	LCD B156XW02 V603(H/W:0A) WJ AUO	
	A15G1691101	MAIN_FRAME	
	A15G1695101	MAIN_FRAME COVER	
	A34G2684AEDA1B0100	e1649Fwu_BEZEL	
	A34G2685AED 1B0100	REAR COVER	
	A34G2686AED 1B0100	COVER	
	A34G2687AED 1B0100	e1649Fwu_STAND	
	A34G2688AED 1B0100	e1649Fwu_STAND	
	A37G0276011	HINGE_15.6"	
	H40G 001624 1A	CARTON LABEL BARCODE 1	
	H40G 15N61523A	E1649FWU ID LABEL	
	H40G000261537A	E1649FWU FRENCH LABEL	
	H40G000261544A	E1649FWU POP LABEL	
	H41G78S1615 1B	e1649Fwu QSG	
	H44G5005101	EPS	
	H44G5005201	EPS	
	H44G5006615 1C	ARTWORK CARTON E1649FWU	
	H45G 87 1 17	EPE COVER	
	H45G3301001JLY	RPOTECT BAG	
	H52G1601 1	anti static electricity_tape	
	H70G16C1615 1C	e1649Fwu CD MANUAL	
	Q12G6300137	FOOT PAD	
	Q40G 58162435A	LABEL	
	Q45G 76 28 H A	P.E. BAGx320x210x0.04	
	Q50G 4 10	TIE (Y1900221)	
	Q52G1001211 B JY	AL FOIL	
	Q85G 583612	GASKET_ALUMINIUM FOIL	
ECN701	S95G176T40NW04	FFC CABLE P0.5 40P 210MM	2nd source
	USBBHA2	USB BOARD	
	756GHBCB A1073	MAIN BOARD-CBPCBDLA1H1	

SMTCB-U409	100GAAA6000W11	MCU ASS'Y-056G1133138	
	H40G 45762429A	LABEL	
CN702	033G8032 6F HR	CONNECTOR 6P 1.25	
U702	056G 379110	IC G5126TB1U SOT23-6	
U407	056G 527 18	Tilt Sensor ISA401	
U709	056G 563146	LDO G912T63U 1A 1.2V SOT-223	
U707	056G 563156	IC G9141T11U SOT23-5	
U708	056G 563345	DC/DC AT1528P11U 2A SOP-8	
U402	056G 615902 G	DRAM H5DU1262GTR-E3C 128M TSOPII-66	
U401	056G1126 81	V/A PROCESSOR DL-125 BGA-276	
U409	056G1133138	EEPROM AT24C128BN-SH-T 128Kb SOIC8	
Q307	057G 417518	TRA LMBT3904LT1G 200mA/40V SOT-23 LRC	
Q306	057G 417518	TRA LMBT3904LT1G 200mA/40V SOT-23 LRC	
Q302	057G 417518	TRA LMBT3904LT1G 200mA/40V SOT-23 LRC	
Q301	057G 763940	MOSFET AO3401A SOT-23	
Q304	057G 763940	MOSFET AO3401A SOT-23	
Q305	057G 763940	MOSFET AO3401A SOT-23	
R422	061G0402000 JF	RST CHIPR MAX0R05 1/16W FENGHUA	
R437	061G0402000 JF	RST CHIPR MAX0R05 1/16W FENGHUA	
R742	061G04021009FF	RST CHIPR 10 OHM +-1% 1/16W FENGHUA	
R743	061G04021009FF	RST CHIPR 10 OHM +-1% 1/16W FENGHUA	
R750	061G0402101 JF	RST CHIPR 100 OHM +-5% 1/16W FENGHUA	
R749	061G0402101 JF	RST CHIPR 100 OHM +-5% 1/16W FENGHUA	
R465	061G0402101 JF	RST CHIPR 100 OHM +-5% 1/16W FENGHUA	
R464	061G0402101 JF	RST CHIPR 100 OHM +-5% 1/16W FENGHUA	
R460	061G0402101 JF	RST CHIPR 100 OHM +-5% 1/16W FENGHUA	
R459	061G0402101 JF	RST CHIPR 100 OHM +-5% 1/16W FENGHUA	
R458	061G0402101 JF	RST CHIPR 100 OHM +-5% 1/16W FENGHUA	
R457	061G0402101 JF	RST CHIPR 100 OHM +-5% 1/16W FENGHUA	
R403	061G0402101 JF	RST CHIPR 100 OHM +-5% 1/16W FENGHUA	
R302	061G0402101 JF	RST CHIPR 100 OHM +-5% 1/16W FENGHUA	
R301	061G0402101 JF	RST CHIPR 100 OHM +-5% 1/16W FENGHUA	
R438	061G0402102 JF	RST CHIPR 1KOHM +-5% 1/16W FENGHUA	
R307	061G0402102 JF	RST CHIPR 1KOHM +-5% 1/16W FENGHUA	
R751	061G0402103 JF	RST CHIPR 10KOHM +-5% 1/16W FENGHUA	
R477	061G0402103 JF	RST CHIPR 10KOHM +-5% 1/16W FENGHUA	
R476	061G0402103 JF	RST CHIPR 10KOHM +-5% 1/16W FENGHUA	
R475	061G0402103 JF	RST CHIPR 10KOHM +-5% 1/16W FENGHUA	
R474	061G0402103 JF	RST CHIPR 10KOHM +-5% 1/16W FENGHUA	
R443	061G0402103 JF	RST CHIPR 10KOHM +-5% 1/16W FENGHUA	
R432	061G0402103 JF	RST CHIPR 10KOHM +-5% 1/16W FENGHUA	
R418	061G0402103 JF	RST CHIPR 10KOHM +-5% 1/16W FENGHUA	
R305	061G0402103 JF	RST CHIPR 10KOHM +-5% 1/16W FENGHUA	
R306	061G0402104 JF	RST CHIPR 100KOHM +-5% 1/16W FENGHUA	

R446	061G0402104 JF	RST CHIPR 100KOHM +-5% 1/16W FENGHUA	
R424	061G0402105 JF	RST CHIPR 1MOHM 5% 1/16W FENGHUA	
R405	061G04021502FF	RST 0402 15K 1% 1/16W FENGHUA	
R406	061G04021502FF	RST 0402 15K 1% 1/16W FENGHUA	
R752	061G0402153 JF	RST CHIPR 15KOHM 1/16W FENGHUA	
R740	061G04022201FF	RST CHIPR 2.2KOHM +-1% 1/16W FENGHUA	
R744	061G04022201FF	RST CHIPR 2.2KOHM +-1% 1/16W FENGHUA	
R434	061G0402223 JF	RST CHIPR 22KOHM 5% 1/16W FENGHUA	
R435	061G0402223 JF	RST CHIPR 22KOHM 5% 1/16W FENGHUA	
R408	061G04022402FF	RST 0402 24K 1% 1/16W FENGHUA	
R456	061G04022499FF	RST CHIP 0402 24.9OHM 1% 1/16W FENGHUA	
R455	061G04022499FF	RST CHIP 0402 24.9OHM 1% 1/16W FENGHUA	
R454	061G04022499FF	RST CHIP 0402 24.9OHM 1% 1/16W FENGHUA	
R453	061G04022499FF	RST CHIP 0402 24.9OHM 1% 1/16W FENGHUA	
R452	061G04022499FF	RST CHIP 0402 24.9OHM 1% 1/16W FENGHUA	
R451	061G04022499FF	RST CHIP 0402 24.9OHM 1% 1/16W FENGHUA	
R450	061G04022499FF	RST CHIP 0402 24.9OHM 1% 1/16W FENGHUA	
R449	061G04022499FF	RST CHIP 0402 24.9OHM 1% 1/16W FENGHUA	
R423	061G04023001FF	RST CHIP 3KOHM 1% 1/16W FENGHUA	
R439	061G0402330 JF	RST CHIPR 33 OHM +-5% 1/16W FENGHUA	
R440	061G0402330 JF	RST CHIPR 33 OHM +-5% 1/16W FENGHUA	
R410	061G04024301FF	RST CHIP 4K3 1/16W 1% FENGHUA	
R404	061G04024702FF	RST CHIPR 0402 47K +-1% 1/16W FENGHUA	
R748	061G0402472 JF	RST CHIPR 4.7KOHM +-5% 1/16W FENGHUA	
R747	061G0402472 JF	RST CHIPR 4.7KOHM +-5% 1/16W FENGHUA	
R745	061G0402472 JF	RST CHIPR 4.7KOHM +-5% 1/16W FENGHUA	
R445	061G0402472 JF	RST CHIPR 4.7KOHM +-5% 1/16W FENGHUA	
R441	061G0402472 JF	RST CHIPR 4.7KOHM +-5% 1/16W FENGHUA	
R428	061G0402472 JF	RST CHIPR 4.7KOHM +-5% 1/16W FENGHUA	
R304	061G0402472 JF	RST CHIPR 4.7KOHM +-5% 1/16W FENGHUA	
R436	061G0402621 JF	RST CHIPR 620 OHM +-5% 1/16W FENGHUA	
R468	061G0402750 JF	RST CHIPR 75 OHM +-5% 1/16W FENGHUA	
R469	061G0402750 JF	RST CHIPR 75 OHM +-5% 1/16W FENGHUA	
R470	061G0402750 JF	RST CHIPR 75 OHM +-5% 1/16W FENGHUA	
R402	061G04027509FF	RST CHIPR 75 OHM +-1% 1/16W FENGHUA	
R407	061G0603100 JF	RST CHIPR 10 OHM 5% 1/10W FENGHUA	
R480	061G0603100 JF	RST CHIPR 10 OHM 5% 1/10W FENGHUA	
R417	061G06033481FF	RST CHIPR 3.48KOHM 1/10W FENGHUA	
R416	061G06034750FF	RST CHIPR 475 OHM +-1% 1/10W FENGHUA	
R401	061G08051152FF	RST CHIPR 11.5KOHM +-1% 1/8W FENGHUA	
R753	061G1206301 JF	RST CHIPR 300 OHM +-5% 1/4W fenghua	
R746	061G1206301 JF	RST CHIPR 300 OHM +-5% 1/4W fenghua	
C480	065G040210131J Y	CAP CHIP 0402 100P 50V NP0 +/-5%	
C303	065G040210232K Y	CAP CHIP 0402 1N 50V X7R +/-10%	

C405	065G040210332K	Y	CAP CHIP 0402 10N 50V X7R +/-10%	
C737	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C736	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C735	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C709	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C467	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C457	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C456	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C453	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C452	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C451	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C450	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C449	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C448	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C444	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C443	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C738	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C761	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C759	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C755	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C753	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C751	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C750	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C748	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C747	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C746	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C745	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C744	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C742	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C741	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C740	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C739	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C442	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C417	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C416	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C414	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C413	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C412	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C411	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C410	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C409	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C408	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C406	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C404	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	

C403	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C402	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C302	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C301	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C418	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C441	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
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C435	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C434	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C433	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C432	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
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C426	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C425	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C424	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C420	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C419	065G040210412K	Y	CAP 0402 100NF 10% 16V X7R	
C454	065G0402105A5K	Y	NO-SUGGEST CAP 0402 1UF 10% 10V X5R	
C445	065G0402105A5K	Y	NO-SUGGEST CAP 0402 1UF 10% 10V X5R	
C436	065G0402105A5K	Y	NO-SUGGEST CAP 0402 1UF 10% 10V X5R	
C423	065G0402105A5K	Y	NO-SUGGEST CAP 0402 1UF 10% 10V X5R	
C422	065G0402105A5K	Y	NO-SUGGEST CAP 0402 1UF 10% 10V X5R	
C421	065G0402105A5K	Y	NO-SUGGEST CAP 0402 1UF 10% 10V X5R	
C401	065G0402105A5K	Y	NO-SUGGEST CAP 0402 1UF 10% 10V X5R	
C476	065G040218031J	Y	MLCC 0402 18pF 50V NPO +-5% YAGEO	
C475	065G040218031J	Y	MLCC 0402 18pF 50V NPO +-5% YAGEO	
C474	065G040218031J	Y	MLCC 0402 18pF 50V NPO +-5% YAGEO	
C473	065G040218031J	Y	MLCC 0402 18pF 50V NPO +-5% YAGEO	
C472	065G040218031J	Y	MLCC 0402 18pF 50V NPO +-5% YAGEO	
C427	065G040218031J	Y	MLCC 0402 18pF 50V NPO +-5% YAGEO	
C428	065G040218031J	Y	MLCC 0402 18pF 50V NPO +-5% YAGEO	
C469	065G040218031J	Y	MLCC 0402 18pF 50V NPO +-5% YAGEO	
C471	065G040218031J	Y	MLCC 0402 18pF 50V NPO +-5% YAGEO	
C470	065G040218031J	Y	MLCC 0402 18pF 50V NPO +-5% YAGEO	
C447	065G0402224A5K	Y	CAP CHIP 0402 220N 10V X5R +/-10%	
C765	065G060310512K	T	CAP 0603 1UF 10% 16V X7R	
C458	065G060310512K	T	CAP 0603 1UF 10% 16V X7R	
C304	065G060310605M	Y	NO-SUGGEST CAP 0603 10uF 20% 6.3V X5R	
C306	065G060310605M	Y	NO-SUGGEST CAP 0603 10uF 20% 6.3V X5R	
C764	065G0805106A5K	Y	NO-SUGGEST CAP 0805 10uF 10% 10V X5R	
C763	065G0805106A5K	Y	NO-SUGGEST CAP 0805 10uF 10% 10V X5R	

C762	065G0805106A5K Y	NO-SUGGEST CAP 0805 10uF 10% 10V X5R	
C760	065G0805106A5K Y	NO-SUGGEST CAP 0805 10uF 10% 10V X5R	
C756	065G0805106A5K Y	NO-SUGGEST CAP 0805 10uF 10% 10V X5R	
C754	065G0805106A5K Y	NO-SUGGEST CAP 0805 10uF 10% 10V X5R	
C752	065G0805106A5K Y	NO-SUGGEST CAP 0805 10uF 10% 10V X5R	
C743	065G0805106A5K Y	NO-SUGGEST CAP 0805 10uF 10% 10V X5R	
C703	065G0805106A5K Y	NO-SUGGEST CAP 0805 10uF 10% 10V X5R	
C466	065G0805106A5K Y	NO-SUGGEST CAP 0805 10uF 10% 10V X5R	
C465	065G0805106A5K Y	NO-SUGGEST CAP 0805 10uF 10% 10V X5R	
C455	065G0805475A2K Y	NO-SUGGEST CAP 0805 4.7UF 10% 10V X7R	
C446	065G0805475A2K Y	NO-SUGGEST CAP 0805 4.7UF 10% 10V X7R	
C437	065G0805475A2K Y	NO-SUGGEST CAP 0805 4.7UF 10% 10V X7R	
C415	065G0805475A2K Y	NO-SUGGEST CAP 0805 4.7UF 10% 10V X7R	
C407	065G0805475A2K Y	NO-SUGGEST CAP 0805 4.7UF 10% 10V X7R	
C757	065G120622615K T	CAP CHIP 1206 22UF K 16V X5R	
C704	065G120622615K T	CAP CHIP 1206 22UF K 16V X5R	
C305	065G120622615K T	CAP CHIP 1206 22UF K 16V X5R	
FB705	071G 56K121 M	CHIP BEAD 120OHM 6A MGLB2012-120T-LF	
FB704	071G 56K121 M	CHIP BEAD 120OHM 6A MGLB2012-120T-LF	
FB703	071G 56K121 M	CHIP BEAD 120OHM 6A MGLB2012-120T-LF	
FB702	071G 56K121 M	CHIP BEAD 120OHM 6A MGLB2012-120T-LF	
FB701	071G 56K121 M	CHIP BEAD 120OHM 6A MGLB2012-120T-LF	
FB409	071G 56K121 M	CHIP BEAD 120OHM 6A MGLB2012-120T-LF	
FB408	071G 56K121 M	CHIP BEAD 120OHM 6A MGLB2012-120T-LF	
FB401	071G 56K121 M	CHIP BEAD 120OHM 6A MGLB2012-120T-LF	
FB402	071G 56K121 M	CHIP BEAD 120OHM 6A MGLB2012-120T-LF	
FB403	071G 56K121 M	CHIP BEAD 120OHM 6A MGLB2012-120T-LF	
FB404	071G 56K121 M	CHIP BEAD 120OHM 6A MGLB2012-120T-LF	
FB405	071G 56K121 M	CHIP BEAD 120OHM 6A MGLB2012-120T-LF	
FB406	071G 56K121 M	CHIP BEAD 120OHM 6A MGLB2012-120T-LF	
FB407	071G 56K121 M	CHIP BEAD 120OHM 6A MGLB2012-120T-LF	
L707	073G253S 6 M	COMMON FILTER CHOKE 90 ohm HF	
L706	073G253S 6 M	COMMON FILTER CHOKE 90 ohm HF	
L705	073G253S 6 M	COMMON FILTER CHOKE 90 ohm HF	
L704	073G253S 6 M	COMMON FILTER CHOKE 90 ohm HF	
L702	073G253S 6 M	COMMON FILTER CHOKE 90 ohm HF	
L701	073G253S 71 M	SMD CHOKE 2.2UH 20% 0.020R 8.2A	
L703	073G253S 73 H	SMD CHOKE 10UH 20% 0.059R 3.18A	
X401	093G 22S918 C	CRYSTAL 12MHz 20P SMD-49	
D702	093G 64S522SEM	LL4148	
D701	093G2004 2	DIODE SR24	
CN701	311GF050B40ADH	FFC CONN 0.5mm 40P	
	709G4548 HS001	CONSUMPTIVE ASS'Y	
E715	715G4548M01000005I	MAIN PCB FR4 4L 110X60X1.6MM	

	H52G 2191 1	美纹胶带	
	H52G1701 1	MESH PRINTTING_PAPER	
C001	065G040210412K Y	CAP 0402 100NF 10% 16V X7R	
L001	073G253S 6 M	COMMON FILTER CHOKE 90 ohm HF	
CN001	033G8032 6F HR	CONNECTOR 6P 1.25	
CN002	088G 341902 CL	MINI USB CONN R/A 5P BLACK H=3.95	
E715	715G5071T01000004S	USB PCB FR4 DS 38.5*25*1.6MM	